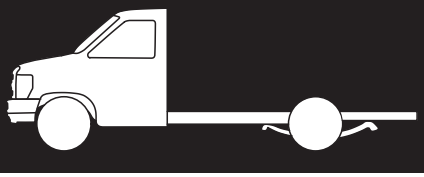
DO NOT DESTROY: THIS MANUAL IS REQUIRED BY LAW. KEEP UNTIL THE VEHICLE IS COMPLETED BY THE FINAL STAGE MANUFACTURER.

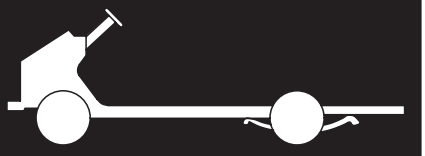
2016
E-SERIES
INCOMPLETE VEHICLE MANUAL

Incomplete Vehicle Types For This Manual

E-SERIES CUTAWAY



E-SERIES BASIC CHASSIS



August, 2015
▽GC24-19A268-AC

U.S. & CANADIAN MOTOR VEHICLE SAFETY STANDARDS
(Application By Vehicle Type)

Standard Number	Title of Standard	Vehicle Type					Equipment (1)
		Bus (Not School Bus)	School Bus	Truck (Not Walk-In Van)	MPV	Truck (Walk-in Van)	
101	Controls and Displays	X	X	X	X	X	
102	Transmission Shift Lever Sequence, Starter Interlock and Transmission Braking Effect	X	X	X	X	X	
103	Windshield Defrosting and Defogging Systems	X	X	X	X	X	
104	Windshield Wiping and Washing Systems	X	X	X	X	X	
105	Hydraulic and Electric Brake Systems	X	X	X	X	X	
106	Brake Hoses	X	X	X	X	X	X
108	Lamps, Reflective Devices and Associated Equipment	X	X	X	X	X	X
111	Rearview Mirrors	X	X	X	X	X	
113	Hood Latch System	X	X	X	X	X	
115	Vehicle Identification Number (Canada only)	X	X	X	X	X	
116	Motor Vehicle Brake Fluids	X	X	X	X	X	X
119 (2)	New Pneumatic Tires for Motor Vehicles with a GVWR of More Than 4,536 Kilograms (10,000 Pounds) and Motorcycles						X
120	Tire Selection and Rims and Motor Home / Recreation Vehicle Trailer Load Carrying Capacity Information for Motor Vehicles with a GVWR of More Than 4,536 Kilograms (10,000 Pounds)	X	X	X	X	X	X
124	Accelerator Control Systems	X	X	X	X	X	
131	School Bus Pedestrian Safety Devices (except Multifunction School Activity Bus)		X				
205	Glazing Materials	X	X	X	X	X	X
207	Seating Systems	X	X	X	X	X	
208	Occupant Crash Protection	X	X	X	X	X	X
209	Seat Belt Assemblies	X	X	X	X		X
210	Seat Belt Assembly Anchorages	X	X	X	X	X	
210.1	User-Ready Tether Anchorages for Restraint Systems and Booster Seats (Canada only)		X				
210.2	Lower Universal Anchorage Systems for Restraint Systems and Booster Seats (Canada only)		X				
213	Child Restraint Systems (U.S. only)	X	X	X	X	X	X

(Continued next Page)

U.S. & CANADIAN MOTOR VEHICLE SAFETY STANDARDS
(Application By Vehicle Type) *(Continued)*

Standard Number	Title of Standard	Vehicle Type					Equipment (1)
		Bus (Not School Bus)	School Bus	Truck (Not Walk-In Van)	MPV	Truck (Walk-in Van)	
213.4	Built-In Restraint Systems & Built-In Booster Seats (Canada only)	X	X	X	X	X	X
217	Bus Emergency Exits and Window Retention and Release	X	X				
220	School Bus Rollover Protection		X				
221	School Bus Body Joint Strength		X				
222	School Bus Passenger Seating and Crash Protection		X				
301	Fuel System Integrity		X				
301.1	LPG Fuel System Integrity (Canada only)			X	X		
301.2	CNG Fuel System Integrity (Canada only)			X	X		
302	Flammability of Interior Materials	X	X	X	X	X	
303	Fuel System Integrity of Compressed Natural Gas Vehicles (U.S. only)		X				
304	Compressed Natural Gas Fuel Container Integrity (U.S. only)	X	X	X	X	X	
403	Platform Lift Systems for Motor Vehicles						X
404	Platform Lift Installations in Motor Vehicles	X	X	X	X	X	
PART 393.67	Parts and Accessories Necessary for Safe Operation – Liquid Fuel Tanks					X	X
PART 565 / 565.13	Vehicle Identification Number (VIN) Requirements (U.S. only)	X	X	X	X	X	
PART 567	Certification (Label Contents & Location)	X	X	X	X	X	
1106	Noise Emissions (Canada only)	X	X	X	X	X	

(1) This column identifies Standards that have equipment/component requirements.

(2) Canadian 119 requirements are found in the Motor Vehicle Tire Safety Standards.

INTRODUCTION

Information in this manual is furnished pursuant to United States and Canadian safety regulations or, in some cases where the information is not required by regulation, is furnished for the convenience of intermediate or final stage vehicle manufacturers. Incomplete vehicles manufactured for sale or importation into the U.S., are specially equipped for the United States. The descriptions and statements contained in the manual relate only to motor vehicle safety standards issued under the National Traffic and Motor Vehicle Safety Act of 1966 as amended.

An incomplete vehicle manufactured for sale or importation into Canada is specially equipped for Canada. This vehicle conforms to the applicable Canadian Motor Vehicle Safety Standards (CMVSS) on the date of manufacture printed on the cover of this manual. Requirements unique to vehicles for use in Canada are identified in the "Statements of Conformity" and the "Canadian Vehicles" sections of this manual.

The "Emission Certification Information" section of this manual contains information regarding conformity to exhaust emission regulations of the United States, Canada, and the State of California and fuel economy regulations of the United States.

This manual should not be relied upon with respect to compliance with any regulation of the Federal Highway Administration or regulations issued pursuant to the Occupational Safety and Health Act (OSHA) or any other Federal, state, provincial, or local regulations governing the performance or construction of motor vehicles (except for those requirements shown in the "Emissions Certification Information" section of this manual under the headings "Unleaded Gasoline Label," "Warranty and Maintenance," and "Emission Control Information Label"). It is the responsibility of the final stage manufacturer to determine applicability and comply with any Federal, state, or local requirements not detailed in this manual.

IMPORTANT:

UNITED STATES VEHICLES

Ford Motor Company has endeavored, whenever possible, to state the specific conditions under which an incomplete vehicle may be completed to conform to each applicable Federal Motor Vehicle Safety Standard. These specific statements are intended to aid subsequent stage manufacturers in avoiding instances of inadvertent noncompliance to particular standards.

Note that the final responsibility for the compliance of the completed vehicle rests with the final stage manufacturer who is required by law to certify, as prescribed by Title 49, Code of Federal Regulations, Part 567.5, that the completed vehicle conforms to all applicable Federal Motor Vehicle Safety Standards and that all applicable Federal, state and California emission/noise standards are conformed with.

Ford Motor Company does not make any representation as to the appropriateness of modifications for any particular application other than expressly stated herein. Intermediate and final stage manufacturers must exercise proper engineering judgment to determine if a modification is appropriate for their specific application.

IMPORTANT:

UNITED STATES AND CANADIAN VEHICLES

Alterations to an incomplete vehicle by someone other than Ford Motor Company, or damage in transit, may affect compliance statements that are furnished in this manual, or representations that are printed on the label that may be affixed to a vehicle.

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DEFINITIONS

The following definitions are from Title 49, Code of Federal Regulations (49CFR), Parts 567.3, 568.3 and 571.3 where noted. Canadian definitions are from Canadian Motor Vehicle Safety Regulations (CMVSR), Section 2(1), and are in italics. Ford Motor Company definitions are for the purpose of this manual only. Some terms are followed by an abbreviation that is used throughout this manual.

Ambulance – is a vehicle for emergency medical care which provides: A driver's compartment; a patient compartment to accommodate an Emergency Medical Technician (EMT), Paramedic, and two litter patients (one patient on the primary cot and secondary patient on folding litter located on the squad bench) so positioned that the primary patient can be given intensive life-support during transit; equipment and supplies for emergency care at the scene as well as during transport; two-way radio communication; and, when necessary, equipment for light rescue/extrication procedures. The Ambulance shall be designed and constructed to afford safety, comfort, and avoid aggravation of the patient's injury or illness. (From Federal Specification KKK-A-1822-F). Ford Motor Company also includes within its definition of ambulance any vehicle that is used for transporting life-support equipment, for rescue operations, or for non-emergency patient transfer if the engine of the vehicle is equipped with a "throttle kicker" device, which enables an operator to increase engine speed over normal idle speed when the vehicle is not moving. (Ford Motor Company)

B-Pillar – is the vehicle body structure located directly rearward of each front door. This structure will include the outer panel, all inner panels or reinforcements which support the door opening, the door latching system, and/or the roof structure. (Ford Motor Company)

Basic (Stripped) Chassis – an incomplete vehicle, without occupant compartment, that requires the addition of an occupant compartment and cargo-carrying, work performing, or load-bearing components to perform its intended function. (Ford Motor Company)

Bus – a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons. (49CFR571.3)

Bus *(Canada) – a vehicle having a designated seating capacity of more than 10, but does not include a trailer or a vehicle imported temporarily for special purposes. (autobus)*

Chassis Cab – an incomplete vehicle, with completed occupant compartment, that requires only the addition of cargo-carrying, work performing, or load-bearing components to perform its intended functions. (49CFR567.3)

Completed Vehicle – a vehicle that requires no further manufacturing operations to perform its intended function. (49CFR567.3)

Critical Control Item – is a component or procedure which may affect compliance with a Federal regulation or, which could directly affect the safe operation of the vehicle. The identifying symbol is an inverted delta (▽). (Ford Motor Company)

Cutaway Chassis – an incomplete vehicle that has the back of the cab cut out for the intended installation of a structure that permits access from the driver's area to the back of the completed vehicle. (Ford Motor Company)

Cutaway Chassis *(Canada) – an incomplete vehicle that has the back of the cab cut out for the intended installation of a structure that permits access from the driver's area to the back of the vehicle. (châssis tronqué)*

Designated Seating Position – means a seat location that has a seating surface width, as described in §571.10(c) of this part, of at least 330 mm (13 inches). The number of designated seating positions at a seat location is determined according to the procedure set forth in §571.10(b) of this part. However, for trucks and multipurpose passenger vehicles with a gross vehicle weight rating greater than 10,000 lbs, police vehicles as defined in S7 of FMVSS 208, firefighting vehicles, ambulances, and motor homes, a seating location that is labeled in accordance with S4.4 of FMVSS 207 will not be considered a designated seating position. For the sole purpose of determining the classification of any vehicle sold or introduced into interstate commerce for purposes that include carrying students to and from school or related events, any location in such a vehicle intended for securement of an occupied wheelchair during vehicle operation is regarded as four designated seating positions. (49CFR571.3)

Designated Seating Position *(Canada) – means a location in a vehicle that is likely to be used as a seating position and that has a seating surface width of at least 330 mm; (place assise désignée)*

Final-Stage Manufacturer – a person who [*company that (CMVSR)*] performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle. (49CFR567.3)

Gross Axle Weight Rating (GAWR) – the value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces. (49CFR571.3)

Gross Combination Weight Rating (GCWR) – the value specified by the manufacturer as the loaded weight of a combination vehicle. (49CFR571.3)

Gross Vehicle Weight Rating (GVWR) – the value specified by the manufacturer as the loaded weight of a single vehicle. (49CFR571.3)

H-Point – the mechanically hinged hip point of a manikin which simulates the actual pivot center of the human torso and thigh, described in SAE Recommended Practice J826, "Manikins For Use in Defining Vehicle Seating Accommodations," November 1962. (49CFR571.3)

H-point *(Canada) – the mechanically hinged hip point of a manikin that simulates the actual pivot centre of the human torso and thigh, described in SAE Standard J826 APR80, Devices for Use in Defining and Measuring Vehicle Seating Accommodation. (point H)*

Incomplete Vehicle – an assemblage consisting, at a minimum, of chassis (including the frame) structure, power train, steering system, suspension system, and braking system, in the state that those systems are to be part of the completed vehicle, but requires further manufacturing operations to become a completed vehicle. (49CFR567.3)

(Continued next page)

(Continued)

Incomplete Vehicle *(Canada) – a vehicle (a) other than a vehicle imported temporarily for special purposes, that is capable of being driven and that consists, at a minimum, of a chassis structure, power train, steering system, suspension system and braking system in the state in which those systems are to be part of the completed vehicle, but requires further manufacturing operations to become a completed vehicle or (b) that is an incomplete trailer. (véhicule incomplet)*

Incomplete Vehicle Manufacturer – a person [*company that (CMVSR)*] who manufactures an incomplete vehicle by assembling components none of which, taken separately, constitute an incomplete vehicle. (49CFR567.3)

Intermediate Manufacturer – a person [*company (CMVSR)*], other than the incomplete vehicle manufacturer or the final stage manufacturer, who [*that (CMVSR)*] performs manufacturing operations on a vehicle manufactured in two or more stages. (49CFR567.3)

Motor Home – a multi-purpose vehicle with motive power that is designed to provide temporary residential accommodations, as evidenced by the presence of at least four of the following facilities: cooking; refrigeration or ice box; self-contained toilet; heating and/or air conditioning [*system that can function independently of the vehicle engine (CMVSR)*]; a potable water supply system including a faucet and a sink; and a separate 110-125 volt electrical power supply and/or an LP gas supply. (49CFR571.3)

Multifunction School Activity Bus (MFSAB) – a school bus whose purposes do not include transporting students to and from home or school bus stops. (49CFR571.3)

Multipurpose Passenger Vehicle (MPV) – a motor vehicle with motive power, except a low-speed vehicle or trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation. (49CFR571.3)

Multipurpose Passenger Vehicle (MPV) *(Canada) – a vehicle having a designated seating capacity of 10 or less that is constructed either on a truck-chassis or with special features for occasional off-road operation, but does not include an air cushion vehicle, an all-terrain vehicle, a golf cart, a low-speed vehicle, a passenger car, a three-wheeled vehicle, a truck or a vehicle imported temporarily for special purposes. (véhicule de tourisme à usages multiples)*

School Bus – a bus that is sold, or introduced in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include a bus designed and sold for operation as a common carrier in urban transportation. (49CFR571.3)

School Bus *(Canada) – a bus designed or equipped primarily to carry students to and from school. (autobus scolaire)*

Seating Reference Point – the unique design H-point, as defined in SAE J1100 (June 1984), which:

(a) establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle,

(b) has X, Y, and Z coordinates established relative to the designed vehicle structure,

(c) simulates the position of the pivot center of the human torso and thigh, and

(d) is the reference point employed to position the two-dimensional drafting template described in SAE J826 (May 1987).

(abbreviated by Ford Motor Company)

Seating Reference Point *(Canada) – the unique Design H-point, as defined in section 2.2.11.1 of SAE Recommended Practice J1100 (June 1993), that:*

(a) establishes the rearmost normal design driving or riding position of each designated seating position, taking into account all modes of adjustment – horizontal, vertical and tilt – in a vehicle,

(b) has X, Y and Z coordinates, as defined in section 2.2.3 of SAE Recommended Practice J1100 (June 1993), established relative to the designed vehicle structure,

(c) simulates the position of the pivot centre of the human torso and thigh, and

(d) is the reference point employed to position the H-point template with the 95th percentile leg, as described in section 3.1 of SAE Standard J826 (June 1992), or, if that drafting template cannot be positioned, the reference point when the seat is in its rearmost adjustment position.

(point de référence de position assise)

Second Unit Body (SUB) – consists of the body structure and/or all the cargo carrying, work performing, and/or load bearing components and/or equipment installed by a subsequent stage manufacturer on an incomplete vehicle, such that the incomplete vehicle becomes a completed vehicle. (Ford Motor Company)

Subsequent Stage Manufacturer – a term which means either intermediate or final stage manufacturers or both. (Ford Motor Company)

Trimmed Seat – a complete functional seat assembly including the seat pedestal, seat track, seat base frame, seat back, recliner mechanism, seat padding, all attaching hardware, and the final trim material (i.e., cloth, leather, or vinyl). (Ford Motor Company)

Truck – a motor vehicle with motive power, except a trailer, designed primarily for the transportation of property or special purpose equipment. (49CFR571.3)

Truck *(Canada) – a vehicle designed primarily for the transportation of property or special-purpose equipment but does not include a competition vehicle, a crawler-mounted vehicle, a trailer, a work vehicle, a vehicle imported temporarily for special purposes or a vehicle designed for operation exclusively off-road. (camion)*

Unloaded Vehicle Weight (UVW) – the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo, occupants, or accessories that are ordinarily removed from the vehicle when it is not in use. (49CFR571.3)

Unloaded Vehicle Weight *(Canada) – the weight of a vehicle equipped with the containers for the fluids necessary for the operation of the vehicle filled to their maximum capacity, but without cargo or occupants. (poids du véhicule sans charge)*

Untrimmed Seat – the structure including the seat pedestal, seat track, seat base frame, seat back, recliner mechanism, seat padding, and all attaching hardware required for a functional seat assembly without the final trim material (e.g., cloth, leather, or vinyl) and trim material attaching components. (Ford Motor Company)

Walk-In Van – a special cargo/mail delivery vehicle that has only one designated seating position. That designated seating position must be forward facing and for use only by the driver. The vehicle usually has a thin and light sliding (or folding) side door for easy operation and a high roof clearance that a person of medium stature can enter the passenger compartment area in an up-right position. (49CFR571.214)

Walk-In Van *(Canada) – a van type of truck in which a person having a height of 1700 mm can enter the occupant compartment in an upright position by a front door. (fourgon à accès en position debout)*

GENERAL INFORMATION

Information in this section is provided pursuant to Title 49, Code of Federal Regulations, Part 568 – "Vehicles Manufactured in Two or More Stages", and Section 6 of the Canadian Motor Vehicle Safety Regulations (CMVSR) – "Vehicles Manufactured in Stages." Part 568 specifies that final stage manufacturers must complete vehicles in compliance with all applicable Federal Motor Vehicle Safety Standards and affix a label to each incomplete vehicle that is completed in accordance with 49CFR567.5. Section 6.6 of the CMVSR provides labeling requirements for vehicles that are to be sold in Canada.

DIRECTIONS

STATEMENTS OF CONFORMITY

The "Statements of Conformity" section of this manual lists the Federal Motor Vehicle Safety Standards in effect on the date of manufacture of this incomplete vehicle that are applicable to the type(s) of completed vehicles into which this incomplete vehicle may be manufactured. This date is shown on the label affixed to the cover of this manual. These statements, in most cases, apply to specific types of incomplete or completed vehicles and identify GVWR and UVW weight ranges.

The incomplete vehicle type is identified by the 5th, 6th, and 7th digits of the Vehicle Identification Number (VIN). The completed vehicle types to which this incomplete vehicle may appropriately be completed is printed on the label, under the heading "May Be Completed As," that is affixed to the cover of this document. The Completed Vehicle Types chart on a following page identifies how various incomplete vehicles with an optional prep package or a trim code may be completed.

Each statement of conformity is identified by a safety standard number located at the left margin. Because there may be multiple statements of conformity for each safety standard, use care to select the appropriate statement. Unique CMVSS requirements will be identified at the conclusion of the representations for a particular safety standard.

Compliance statements provided in this manual are of the three following types (49CFR568.4):

- **Type I** • A statement that the vehicle, when completed, will conform to the standard if no alterations are made in identified components of the incomplete vehicle.
- **Type II** • A statement of specific conditions of final manufacture under which the incomplete vehicle manufacturer specifies that the completed vehicle will conform to the standard.
- **Type III** • A statement that conformity with the standard cannot be determined based upon the components supplied on the incomplete vehicle, and that the incomplete vehicle manufacturer makes no representation as to conformity with the standard.

IMPORTANT:

To rely on the compliance representations in this manual, the incomplete vehicles must be completed as one of the completed vehicle types designated on the label affixed to the cover of this manual, and must not exceed the specified GVWR, GAWRs, or the Unloaded Vehicle Weight limits when specified in this manual.

This vehicle was certified with a GVWR over 4536 kg [10,000 lb]. If the GVWR is modified to equal or less than 4536 kg [10,000 lb], additional Federal and/or Canadian Motor Vehicle Safety Standards (F/CMVSS) may apply.

VEHICLE SPECIAL ORDER (VSO) VEHICLES

VSO vehicles can be identified by a number with the letters VSO below the digits in the lower right corner of the Incomplete Vehicle Information Label which is affixed to the driver-door lock pillar. See the sample labels on the following page.

The Statements of Conformity section of this manual includes compliance representations for certain VSO vehicles. These vehicles are identified in the Completed Vehicle Types chart. Other VSO vehicles may require additional Statements of Conformity which would be included in a Supplement Section of this manual.

FORD TRUCK ASSISTANCE

Throughout this manual you will find references to information found in the *Ford Truck Body Builders Layout Book.* Additional design recommendations and specifications are also provided to assist subsequent stage manufacturers in completing incomplete vehicles. The *Ford Truck Body Builders Layout Book* may be accessed via the web at www.fleet.ford.com/truckbbas under the "Publications" tab.

The Ford Truck Body Builder Advisory Service may be consulted regarding information contained in this manual.

- Call (877) 840-4338
- E-mail via the web at www.fleet.ford.com/truckbbas under the "Contact Us" tab

VEHICLE DESCRIPTION

INCOMPLETE VEHICLE MANUAL COVER

The cover of this manual identifies the two incomplete vehicle configurations for which compliance representations are contained in this manual. Also, a label is affixed to the cover which includes the Vehicle Identification Number (VIN) for the specific vehicle to which this manual belongs. The label identifies the following information which pertains only to the vehicle with the corresponding VIN.

- GVWR
- Front and rear GAWRs
- Tire and wheel size
- Cold tire inflation pressure (kPa/PSI)
- Completed vehicle type(s) into which the incomplete vehicle may be manufactured
- Optional Prep Package when the vehicle is so equipped

INCOMPLETE VEHICLE INFORMATION LABEL

All E-Series incomplete vehicles manufactured by Ford Motor Company will have an Incomplete Vehicle Information Label affixed to the driver-door lock pillar, except Basic (Stripped) Chassis. The Incomplete Vehicle Information Label for the Basic (Stripped) Chassis is affixed to the front structure and a second label is provided to be permanently affixed in an acceptable location per 49CFR567.4. A sample of a typical label is shown below.

The 5th, 6th, and 7th digits of the Vehicle Identification Number (VIN) will identify the incomplete vehicle type. These three digits are used in the Completed Vehicle Types chart.

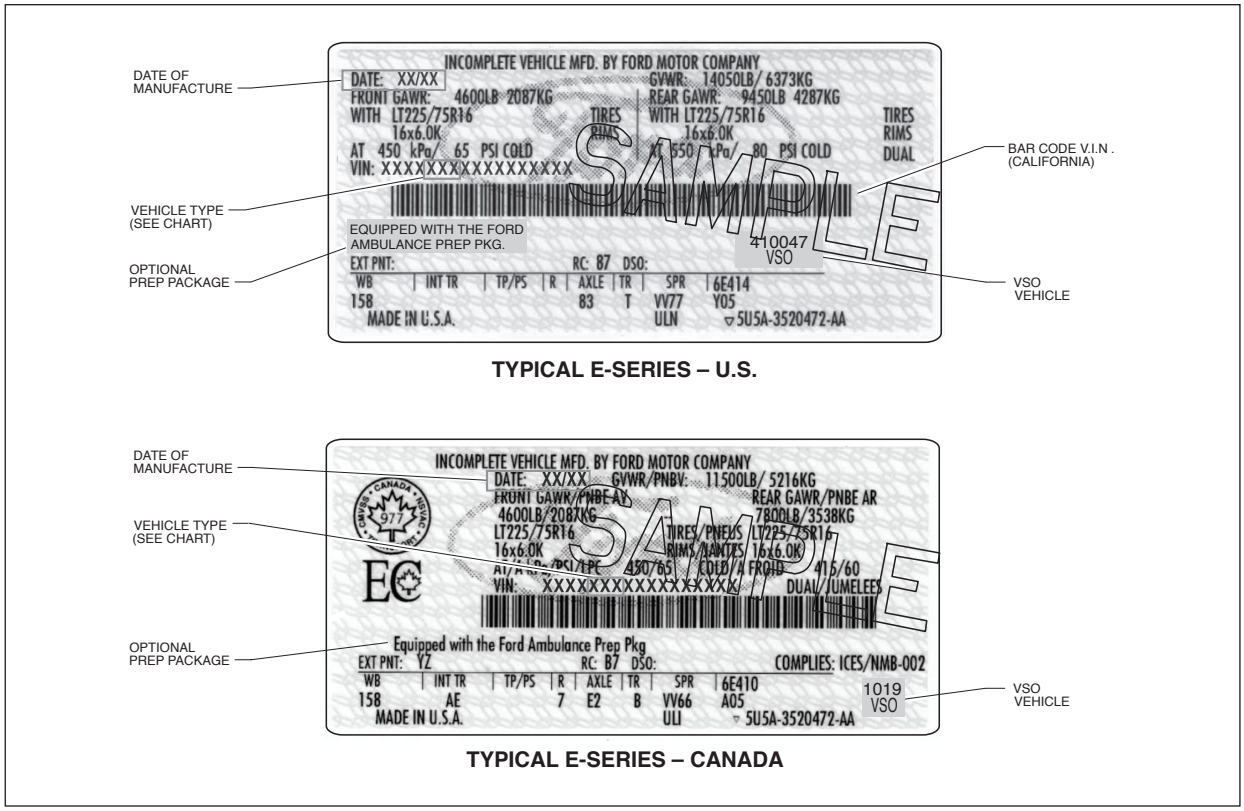
California Air Resources Board (CARB), requires a Vehicle Identification Number (VIN) Label having a non-contact, bar code, reading wand capability. The bar code located directly below the VIN on the Incomplete Vehicle Information Label, when provided, will comply with this regulation.

The Canadian Motor Vehicle Safety Act and Regulations require installation of an Incomplete Vehicle Information Label with the National Safety mark on it on vehicles manufactured for sale in Canada. A sample of a typical label is shown below.

OPTIONAL PREP PACKAGES

Incomplete vehicles produced by Ford Motor Company, in some instances, are equipped with an optional prep package. These include the Ambulance Prep, School Bus Prep, Multi-function School Activity Bus Prep (MFSAB), Motorhome Prep, and Shuttle Bus Prep. The Completed Vehicle Types chart on the following page will identify incomplete vehicles and the optional prep packages or trim codes that may be required by Ford Motor Company if final stage manufacturers wish to rely on the Statements of Conformity or, in some cases, preserve the Ford Motor Company new vehicle warranty.

If an incomplete vehicle is equipped with an optional prep package, both the Incomplete Vehicle Information Label affixed to the vehicle and the label on the front of this manual will identify the optional prep package.



INCOMPLETE VEHICLE INFORMATION LABELS

COMPLETED VEHICLE TYPES

5TH, 6TH, 7TH VIN DIGIT	INCOMPLETE VEHICLES	COMPLETED VEHICLES					
		TRUCK	TRUCK (WALK-IN VAN)	MPV	MPV (AMBULANCE)	BUS (NOT SCHOOL BUS)	SCHOOL BUS
E-Series							
E3F	E-350 Super Duty Cutaway	X		3	1	4	2,5
E3K	E-350 Super Duty Basic (Stripped) Chassis		X	3			
E4F	E-450 Super Duty Cutaway	X		3	1	4	2,5
E4K	E-450 Super Duty Basic (Stripped) Chassis		X				

IMPORTANT:

Ford Motor Company makes no representation that the completed vehicle types listed above are the only vehicle types appropriate for the incomplete vehicles listed. However, if a unit is completed as a vehicle type other than as listed above, the Statements of Conformity may not be applicable.

(1) Ambulance Prep Package

(2) School Bus Prep Package

(3) Motorhome Prep Package

(4) Shuttle Bus Prep Package

(5) Multifunction School Activity Bus (MFSAB) Prep Package

STATEMENTS OF CONFORMITY

The following Statements of Conformity apply to vehicles that are produced for sale or importation into the United States or Canada. The term “Incomplete Vehicle Types” in these statements refers to the two types of the vehicles illustrated on this manual’s cover and listed in the chart on the previous page.

The number preceding each Statement of Conformity refers to the number designation for a Part or a Section of Part 571 of the Federal Motor Vehicle Safety Standard.

The statements provided for each safety standard number are appropriate compliance representations for each Canadian safety standard number if this incomplete vehicle, identified by the VIN on the front of the document, was manufactured by Ford Motor Company for sale or use in Canada, except as may be noted at the conclusion of each safety standard number.

101 The statements below are applicable to the following incomplete vehicle type <u>when equipped with a driver seat:</u>

- **Cutaway**

This vehicle, when completed, will conform to Standard 101, Controls and Displays, if:

- The controls, displays, and their identifications supplied by Ford Motor Company are not removed, relocated, altered, or modified.
- The components, wiring, and power supply installed by Ford Motor Company to illuminate any control, display, or their identification are not removed or altered so as to affect lighting performance.
- Components added to the vehicle do not obstruct the driver’s ability to operate or visually locate the controls, displays, and their identifications.
- The driver-seat is not replaced, relocated, or modified other than for the addition of seat trim.

Any controls, displays, and illumination added to this vehicle must conform to the requirements of this Standard.

101 The statements below are applicable to the following incomplete vehicle type <u>with no driver-seat:</u>

- **Cutaway**

This vehicle, when completed will conform to Standard 101, Controls and Displays, if:

- The Seating Reference Point (see Definitions) and the seat back torso angle of the driver-seat when completed or installed by a subsequent stage manufacturer are located as shown in the Figure C.
- The controls, displays, and their identifications supplied by Ford Motor Company are not removed, altered, or relocated.
- The components, wiring, or power supply installed by Ford Motor Company to illuminate any control, display, or their identification are not removed or altered so as to affect lighting performance.
- Components added to the vehicle do not obstruct the driver’s ability to operate or visually locate the controls, displays, and their identifications.

Any controls, displays, and illumination added to this vehicle must conform to the requirements of this Standard.

101 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

This vehicle, when completed, will meet the identification, color, and illumination requirements of Standard 101, Controls and Displays, based upon the components supplied by Ford Motor Company. However, component location and visibility requirements are the responsibility of the final stage manufacturer; accordingly, Ford Motor Company makes no representation as to comformity to the component location and visibility requirements of this Standard.

102 The statements below are applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 102, Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect, if no alterations or adjustments are made to the transmission, shift cable, transmission outer shift lever, shift cable bracket, vacuum tubes, vacuum pump system, brake-shift interlock system, starter interlock system, wiring circuit from the interlock switch to the power source, and transmission gear selector indicator (PRNDL).

If an auxiliary transmission is added to this vehicle, it must conform to the requirements of this Standard.

102 The statements below are applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

This vehicle, when completed, will conform to Standard 102, Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect, if:

- No alterations or adjustments are made to the transmission, shift cable, transmission outer shift lever, shift cable bracket, vacuum tubes, vacuum pump system, brake-shift interlock system, the starter interlock system, and wiring circuit (except as noted below) from the interlock switch to the power source.
- The E-Series Basic (Stripped) Chassis is equipped with a temporary transmission gear selector indicator (PRNDL) which must be removed prior to completion of the vehicle.
- After installing, securing, and connecting the Smart Power Distribution Junction Box (SPDJB), a short jumper with a Removal tag that is connected to the steering column must be removed. This jumper allows brake shift interlock function until after the installation of the SPDJB. The exposed harness connection is to then be mated to the brake shift interlock solenoid on the steering column, and the function is to be verified in all ignition states.

If an auxiliary transmission is added to this vehicle, it must conform to the requirements of this Standard.

103 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 103, Windshield Defrosting and Defogging Systems, if no alterations or adjustments are made to heater and blower assemblies, ducting, operating controls, electrical circuit from the blower assembly to the power source, windshield, coolant hoses from the radiator or engine to the heater, and if no obstructions are added that restrict or otherwise redirect the air flow from the defroster outlets to the windshield.

103 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 103, Windshield Defrosting and Defogging Systems, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

104 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle when completed, will conform to Standard 104, Windshield Wiping and Washing Systems, if no alterations are made to the windshield, the windshield wiping and washing system, including the electrical circuit from the windshield wiping and washing motors to the power source, and if no obstructions are added that restrict or otherwise redirect fluid flow from the washer nozzles to the windshield.

104 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 104, Windshield Wiping and Washing Systems, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

105 INFORMATION

Incomplete vehicle weight and dimensional information required for center of gravity calculations are available in the *Ford Source Book*. See your local Ford Dealer and refer to appropriate model year and specific vehicle for required information.

Abbreviation definitions and a vehicle diagram to assist with the equations for the Standard 105 segment are shown on a following page.

WARNING:

Do not wrap brake lines with any material that could cause water, dirt, sand or other foreign material to accumulate around the lines, which could potentially result in brake line damage or corrosion.

105 The statements below are applicable to the E-Series Cutaway <u>when equipped with the School Bus Prep Package</u> and completed as a school bus:

This vehicle when completed, will conform to Standard 105, Hydraulic and Electric Brake Systems, if:

- No alterations, modifications, or replacements are made to the following:
  - Service or parking brake system
  - Antilock brake system
  - Vacuum system
  - Wheels and tires
  - Brake system indicator lamp and wiring
  - Brake system reservoir labeling; label is not to be obstructed by additional underhood components
  - Suspension ride height or spring rate*
  - Hydro-Boost system
  - Power Steering pump and lines if used with Hydro-boost
  - Engine belt drive system
  - Wheelbase

***NOTE:**

Ford Motor Company provides Type I and Type II FMVSS/CMVSS 105 compliance statements for vehicles built to factory standard or optional specifications. Suspension ride height and/or spring rate modifications are factors that may affect compliance to this Standard. If an alterer or final stage manufacturer modifies the suspension ride height or spring rate of the factory-equipped vehicle, then they are responsible for engineering analysis or physical testing to ensure compliance and sign-off to Standard 105.

- The School Bus minimum Unloaded Vehicle Weight (UVW – see Definitions) must be at least the weights shown on the following table:

105 *(Continued next page)*

105 *(Continued)*

MINIMUM UNLOADED VEHICLE WEIGHT (UVW) WHEN CUTAWAY COMPLETED AS A SCHOOL BUS	
Vehicle	**Weight Kilogram [Pound]**
E-350 SRW (1)	2540 [5600]
E-350 DRW (11.5K)	3030 [6680]
E-350 DRW (12.5K)	3447 [7600]
E-450 DRW	3821 [8425]

SRW – Single Rear Wheels *(1) Aft-of-axle fuel tank*
DRW – Dual Rear Wheels

- The maximum GAWRs and GVWR, as identified on the cover of this document, are not exceeded.
- The transverse center of gravity is less than 50.8 mm [2.0 in] either side of the vehicle centerline for E-350 only.
- Service or parking brake pedal assembly operation must not be restricted by any alteration or added components.
- The horizontal and vertical center of gravity, of the completed vehicle at Unloaded Vehicle Weight, is within the minimum and maximum locations as defined in the following table:

CENTER OF GRAVITY FOR CUTAWAY COMPLETED AS A SCHOOL BUS				
Location mm [in]	**E-350 SRW**	**E-350 DRW 11.5K**	**E-350 DRW 12.5K**	**E-450 DRW**
Vertical Maximum (1)	302.0 [11.9]			
Horizontal Maximum (2)	2159.0 [85.0]		2454.7 [96.6]	2718.0 [107.0]
Horizontal Minimum (2)	1651.0 [65.0]			

(1) Measured from top of frame at a point midway between the centerlines of the front and rear axles.

(2) Measured rearward from the centerline of the front axle.

105 The statements below are applicable to the following incomplete vehicle types <u>except when completed as a school bus</u>:

- **Cutaway**
- **E-Series Basic (Stripped) Chassis**

This vehicle, when completed, will conform to Standard 105, Hydraulic and Electric Brake Systems, if:

- No alterations, modifications, or replacements are made to the following:
  - Service or parking brake system
  - Antilock brake system
  - Vacuum system
  - Wheels and tires
  - Brake system indicator lamp and wiring
  - Brake system reservoir labeling
  - Suspension ride height or spring rate*
  - Hydro-boost system
  - Power steering pump and lines if used with Hydro-boost
  - Engine belt drive system
  - Wheelbase
- No additional sound deadener or rust proofing material, that may be applied to the vehicle, can interfere with proper parking brake cable function.
- No part of add on equipment, i.e. toolboxes, flat bed attaching brackets, etc., can interfere with the movement of parking brake cables or air flow to rear brake assembly.
- Any removal of a Ford body or chassis component is accompanied by the addition of equal weight.
- E-Series Cutaway and Basic (Stripped) Chassis vehicles conform to the minimum SUB weights found in Table A.
- The maximum GAWRs and GVWR, as identified on the cover of this document, are not exceeded with the vehicle weight at Unloaded Vehicle Weight + Passenger Load (P). (See E-Series Passenger Load table on this page.)
- The service or parking brake pedal assembly operation is not restricted by any alteration or added components.
- The SUB horizontal center of gravity must be at or forward of the rear axle centerline for the following vehicles:
  - E-350/450 Basic (Stripped) Chassis
  - E-350 Super Duty Cutaway (DRW)
  - E-450 Super Duty Cutaway

The horizontal center of gravity for the SUB is:

- At or forward of the rear axle centerline. The vertical center of gravity for the completed vehicle at GVWR CGv (Equation A) must not exceed 48.0 inches when measured from the ground.
- Behind the rear axle centerline. The vertical center of gravity for the completed vehicle at GVWR must fall within the appropriate range determined from Table D. The value of CGh (Equation B), which approximates the horizontal center of gravity of the completed vehicle, is used in Table D to determine the vertical center of gravity limits for the completed vehicle. The value of CGv (Equation A) which approximates the vertical center of gravity of the completed vehicle must fall within the appropriate range determined from Table D.

EQUATION A

$$CG_v = \frac{CG_{vb}W_b + CG_{vc}\left(W_c + W_l\right) + 25P}{GVWR}$$

EQUATION B

$$CG_h = \frac{\left(W_{rb} + W_{rc} + \left(\frac{P \times CG_{hp}}{WB}\right) + W_{rl}\right) \times WB}{GVWR}$$

E-SERIES PASSENGER LOAD	
GVWR [lb]	**P [lb]**
10,001 – 14,500	500

***NOTE:**

Ford Motor Company provides Type I and Type II FMVSS/CMVSS 105 compliance statements for vehicles built to factory standard or optional specifications. Suspension ride height and/or spring rate modifications are factors that may affect compliance to this Standard. If an alterer or final stage manufacturer modifies the suspension ride height or spring rate of the factory-equipped vehicle, then they are responsible for engineering analysis or physical testing to ensure compliance and sign-off to Standard 105.

FMVSS 105 DEFINITIONS AND CALCULATION ILLUSTRATION FOR INCOMPLETE E-SERIES VEHICLES

P = Passenger load (See E-Series Passenger Load Table).

CG_v = Vertical distance from the ground to the center of gravity [inches] of the completed vehicle.

CG_h = Horizontal distance from ℄ of the front wheels to completed vehicle center of gravity [inches].

CG_{vb} = Vertical distance from the ground to the center of gravity of the SUB and/or permanently attached added equipment [inches].

CG_{vc} = Vertical distance from the ground to the center of gravity of the chassis [inches] (including cab if original equipment). (Taken from Table F).

CG_{hp} = Horizontal distance from the ℄ of the front wheels to the P [inches] (passenger load) (taken from Table D).

W_b = Weight of the SUB and/or permanently attached added equipment [pounds].

W_{rb} = Weight at the rear wheels of the SUB and/or permanently attached added equipment [pounds].

W_{rc} = Weight at the rear wheels of the vehicle (chassis and cab) (fuel tanks full) [pounds]. Including option weight.

W_c = Weight of the vehicle (chassis and cab) (fuel tanks full) [pounds]. Including option weight.

WB = Vehicle wheelbase [inches].

W_t = Total unladen weight:

$$W_t = (W_b + W_c + P)$$

GVWR = Gross Vehicle Weight Rating of the vehicle [pounds].

W_l = Remaining cargo capacity [pounds].

$$W_l = GVWR - (W_b + W_c + P)$$

W_{rl} = Weight of the remaining cargo capacity on the rear wheels [pounds].

$$W_{rl} = \frac{(CG_{hl})W_l}{WB}$$

CG_{hl} = Horizontal distance from the ℄ of the front wheels to the cargo center of gravity [inches] (taken from Table C). For many common vehicles, the CG_{hl} is not given in the table, then it may be estimated as the distance from the ℄ of the front wheel to the horizontal midpoint of the cargo area.

SUB = A Second Unit Body consists of the body structure and/or all the cargo carrying, work performing, and/or load bearing components and/or equipment installed by a subsequent stage manufacturer on an incomplete vehicle, such that the incomplete vehicle becomes a completed vehicle.

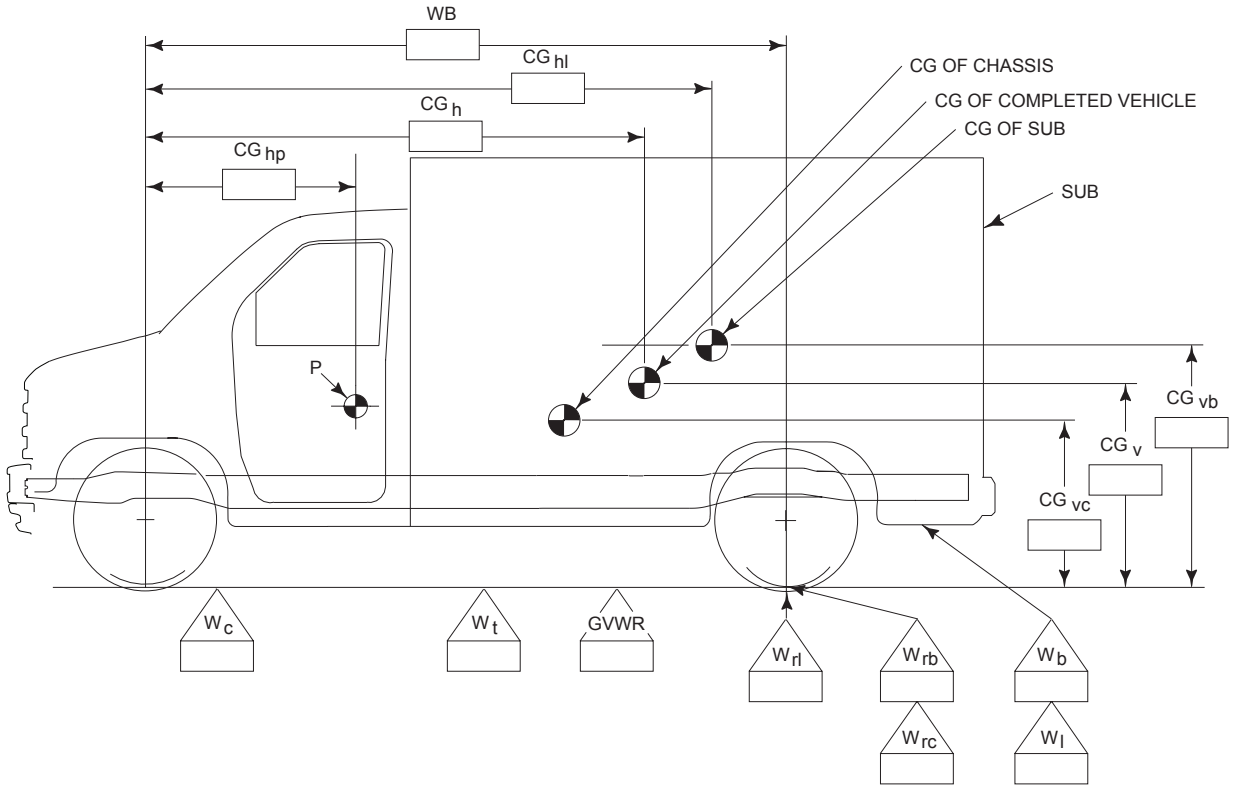


TABLE A
MINIMUM SUB WEIGHT

Model	Kilogram [Pound]
E-350 Cutaway SRW 3505mm [138 in] WB	381 [840]
E-350 Cutaway DRW 3505mm [138 in] WB	204 [450]
E-350 Cutaway DRW 4013mm [158 in] WB	238 [525]
E-350 Cutaway DRW 4470mm [176 in] WB	238 [525]
E-450 Cutaway DRW 4013mm [158 in] WB	238 [525]
E-450 Cutaway DRW 4470mm [176 in] WB	238 [525]
E-350 Basic (Stripped) Chassis DRW All WB	862 [1900]
E-450 Basic (Stripped) Chassis DRW All WB	998 [2200]

Minimum unloaded vehicle weight for Cutaways completed as school buses is defined in Standard 105 requirements.

TABLE B

CG_{hl} = Horizontal distance from front axle to cargo CG

Model		WB (in)	CGhl (in)†
†Cutaway	(SRW)	138	121
	(DRW)	138	127
†Comm. Cab/Box Partition	(DRW)	158	134
†RV	(DRW)	158	138
†Comm. No Partition	(DRW)	158	143
†RV	(DRW)	176	153
†Comm.	(DRW)	176	160

† *If CG_{hl} is not given in the table or if the location of your cargo is not in the normal cargo area, then your CGhl may be estimated as the distance from the ℄ of the front wheel to the horizontal midpoint of the cargo area.*

TABLE C

CG_{hp} = Horizontal distance from front wheel ℄ to front passenger load. (Dimensions are inches)

All E-Series†	48.5

† *Except the E-Series Basic (Stripped) Chassis where the distance from the ℄ of the front axle to the H point of the driver must be measured.*

TABLE E

CG_{VC} = Vertical distance from ground to chassis CG

Model	CG_{VC} (in)
E-350 Cutaway	28.0
E-450 Cutaway	26.5
E-350/450 Basic (Stripped) Chassis	26.5

TABLE D

CG_V = Vertical distance from the ground to the completed vehicle center of gravity

Requires Use of Equations A & B

Place the CG_h of the vehicle (from Equation B) into the appropriate equations below to determine the allowable range of the CG_V. If the actual CG_V (from Equation A) is within the range calculated, the center of gravity location is acceptable.

Model	WB (in)	Equation for CG_V Range	
		Upper Limit (in)	Lower Limit (in)
E-350 (SRW)	138	CG_V = 1.27 x CGh - 60.0	1.27 x CG_h - 80.0
	158	CG_V = 1.27 x CGh - 69.5	1.27 x CG_h - 90.7

106 The statement below is applicable to all incomplete vehicle types:

This vehicle, when completed, will conform to Standard 106, Brake Hoses, if the brake hose assemblies supplied by Ford Motor Company are not removed, relocated, altered, or modified and if no brake hose assemblies are added.

108 The statements below are applicable to the following incomplete vehicle type:

- **Cutaway**

No additional components may be added to the vehicle which require the use of tools to remove such components, for access to the headlamp aiming devices as provided by Ford Motor Company.

Light Trucks for sale or use in Canada are equipped Daytime Running Lamps (DRL's) that meet the Canadian DRL requirements. As manufactured for Canada, the E-Series vehicles will meet the FMVSS 108 requirement for DRL's when DRL's are provided.

Conformity with FMVSS 108, S12, Headlamp Concealment Device Requirements, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

108 The statements below are applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 108, Lamps, Reflective Devices, and Associated Equipment, if all the required lighting equipment as indicated in Table F on this page (identified by the codes D, R and S) is designed and installed in accordance with the requirements of Standard 108 and the directions contained in this statement. Additionally, if the completed vehicle overall length is 9.14 meters [30 feet] or more, intermediate side marker lamps and reflex reflectors (not supplied by Ford Motor Company) are also required for compliance with Standard 108.

The items of equipment which are supplied by Ford Motor Company (identified by the code S in Table F, on this page) are designed and installed to conform to all the applicable requirements of Standard 108. The completed vehicle, with these components installed, will conform to Standard 108 if the subsequent stage manufacturer does not remove, relocate, alter, or modify such equipment or modify the power supply or wiring to such equipment, and does not complete the body in such a configuration as to impair the visibility and conformity to the photometric requirements of the installed lamps and reflective devices.

Specific requirements for lighting and associated equipment are listed by incomplete vehicle type in Table F on this page.

Lamps, reflective devices, and associated equipment necessary to complete the vehicle from an incomplete vehicle must conform to the equipment, locations, special wiring, visibility, photometric, and performance requirements of Standard 108 and to the applicable SAE standards or recommended practices referenced or sub-referenced in this Standard.

All electrical equipment added to the vehicle by subsequent stage manufacturers must conform to the wiring practices set forth in the Electrical Wiring Section of the *Ford Truck Body Builders Layout Book*.

TABLE F
Standard 108 Lighting Equipment

Item		E-Series Completed as Truck, MPV, Bus or School Bus Width 2032 mm [80 in] or More
Headlamps with Hi/Lo beam switching (3)		S
Daytime Running Lamps (when provided)		S/N (4)
Tail Lamps		R
Stop Lamps		R
Center High Mounted Stop Lamp (CHMSL)		N
License Plate Lamps		R
Reflex Reflectors	– Side Front	S/R
	– Side Rear	R
	– Rear	R
Side Marker Lamps	– Front	S/R
	– Rear	R
Back-Up Lamps		R
Turn Signal Lamps	– Front	S/R
	– Rear	R
Turn Signal Operating Unit		S
Turn Signal Flasher (2)		S
Vehicular Hazard Warning Signal Operating Unit		S
Vehicular Hazard Warning Signal Flasher		S
Identification Lamps	– Front	R
	– Rear	R
Clearance Lamps	– Front	R(1)
	– Rear	R
Parking Lamps		N
School Bus Lamps and Switches (School Bus except Multifunction School Activity Bus)		R

S Required on completed vehicle and supplied with the incomplete vehicle.

R Required on completed vehicle and <u>not</u> supplied with the incomplete vehicle.

N Not required for completed vehicle.

(1) Cab-mounted clearance lamps, if supplied, may not adequately indicate overall width of the vehicle per F/CMVSS 108; additional clearance lamps may be required on the Second Unit Body if the SUB is higher than the cab.

(2) Turn signal flasher function is contained within the Smart Power Distribution Junction Box features. All chassis cab and stripped chassis vehicles are configured to provide the function of a variable-load turn signal flasher. Turn signal lamp failure indication is not supplied with the incomplete vehicle and will be required if the completed vehicle does not meet the exemption criteria in S9.3.6 of FMVSS 108.

(3) Due to variation in finished-vehicle attitude, headlights should be aimed after the modifications are completed.

(4) Required on Canadian vehicles; optional on U.S. vehicles.

108 *(Continued next page)*

108 *(Continued)*

108 The statements below are applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis:**

Conformity with Standard 108, Lamps, Reflective Devices, and Associated Equipment, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this standard. However, Ford Motor Company does represent that the items of lighting equipment, when provided in the E-Series dunnage box attached to the chassis, are designed to conform to the requirements of Standard 108.

108 Canadian Requirements:

The preceding statements for Standard 108 are appropriate compliance representations for CMVSS 108, Lighting System and Retroreflective Devices, if this vehicle is manufactured for sale or use in Canada, provided:

- No component of the Daytime Running Lamp (DRL) system is removed, relocated, or modified.

111 The statement below is applicable to the following incomplete vehicle types when not equipped with outside mirrors:

- **Cutaway**
- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 111, Rearview Mirrors, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

111 The statements below are applicable to the Cutaway <u>when equipped with outside mirrors:</u>

Conformity with the stability requirements of Standard 111, Rearview Mirrors, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with stability requirements of this Standard. However, except for the stability requirement, this vehicle, when completed, will conform to Standard 111, Rearview Mirrors, if:

- The outside mirrors and their mounts, as supplied by Ford Motor Company, are installed in accordance with the instructions that accompany them and they are not relocated, replaced, or altered.
- The Cutaway with the School Bus Prep Package is completed as a school bus and any outside mirrors (not provided by Ford Motor Company) are installed in conformity with the requirements of Standard 111 for school buses.

111 The statements below are applicable to the following incomplete vehicle type when equipped with OEM outside mirrors:

- **Cutaway**

This vehicle, when completed, will conform to Standard 111, Rearview Mirrors, if:

- The mirrors and their mounts as supplied by Ford Motor Company are not removed, relocated, replaced, nor altered.
- No structural modifications are made to the body which would affect the stability of the mirror mounts.
- Any modifications or additions made to the incomplete vehicle must not adversely affect the driver's view to the rear in the outside mirrors along both sides of the vehicle.

113 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 113, Hood Latch System, if the hood latch system as provided by Ford Motor Company is not removed or altered.

113 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 113, Hood Latch System, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

115 Canadian Requirements:

The statements for Part 565 are appropriate compliance representations for CMVSS 115, Vehicle Identification Number, if this incomplete vehicle was manufactured for sale or use in Canada.

116 The statement below is applicable to all incomplete vehicle types:

This vehicle, when completed, will conform to Standard 116, Motor Vehicle Brake Fluids, so long as any brake fluid added or replaced conforms to the DOT 4 specifications of the standard and contaminants are not introduced into the hydraulic brake system.

119 The statement below is applicable to all incomplete vehicle types:

All tires supplied by Ford Motor Company are in full conformity with Standard 119, New Pneumatic Tires for Motor Vehicles with a GVWR of More Than 4,356 Kilograms (10,000 Pounds) and Motorcycles.

If additional tires are installed or the existing tires are replaced by subsequent stage manufacturers, they must conform to the requirements of Standard 119.

120 The statement below is applicable to all incomplete vehicles:

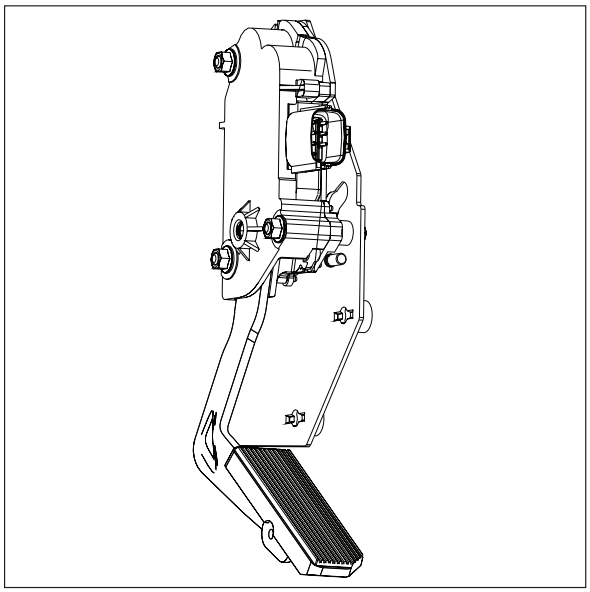
This vehicle, when completed, will conform to the tire and rim selection requirements of Standard 120, Tire Selection and Rims and Motor Home/Recreation Vehicle Trailer Load Carrying Capacity Information for Motor Vehicles with a GVWR of More Than 4536 Kilograms (10,000 Pounds), if:

- The tire and rim assemblies, are not removed, altered, or replaced.
- The Incomplete Vehicle Information Label that is either provided with the incomplete vehicle or affixed to the vehicle is not removed.
- The final stage manufacturer must, in accordance with the requirements of Standard 120 and Part 567 of Title 49, Code of Federal Regulations (Section 6.6 of the Canadian Motor Vehicle Safety Regulations), affix a Certification (Compliance) label to the completed vehicle indicating tire size, rim size, cold inflation pressure, and the gross axle weight ratings. This information is provided on the label that is affixed to the cover of this Incomplete Vehicle Manual (IVM).

124 The statements below are applicable to all incomplete vehicle types:

This vehicle, when completed, will conform to Standard 124, Accelerator Control Systems, if:

- No alterations are made to the accelerator pedal, mounting hardware, adjustable pedal mechanism, or other components of the accelerator control system as installed by Ford Motor Company.
- No equipment is added nor existing equipment modified which would restrict operation of the accelerator control system.
- No alterations are made to the Pedal Position Sensor and all associated hardware and wiring. See the figure below for component identification.



ELECTRONIC ACCELERATOR CONTROL (Typical)

131 The statement below is applicable to the Cutaway when equipped with the School Bus Prep Package and completed as a school bus:

Conformity with Standard 131, School Bus Pedestrian Safety Devices, cannot be determined based upon the components supplied on this incomplete vehicle. Accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

205 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 205, Glazing Materials, if no alterations to or replacements of the installed glazing materials are made and if additional glazing materials installed by a subsequent stage manufacturer conforms to the requirements of Standard 205.

205 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 205, Glazing Materials, cannot be determined based upon the components supplied on this incomplete vehicle: accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

207, 208, 209, and 210 INFORMATION

For additional information to assist in designing seats, seat belt systems, and seat belt anchorages that comply with Standard 207, 208, 209, and 210 applicable to incomplete Cutaway vehicles with no front seats provided by Ford Motor Company, refer to the Design Recommendation section of the *Ford Truck Body Builders Layout Book* for Seat and Lap & Shoulder Belt System information that is in addition to the statements which follow.

207 The statements below are applicable to the following incomplete vehicle type <u>when equipped with trimmed front seats:</u>

- **Cutaway**

This vehicle, when completed, will conform to Standard 207, Seating Systems, if no alterations are made to the seat assemblies, their anchorages, the floor pan, or floor pan reinforcements. Any seating system added to this vehicle must conform to applicable requirements of this Standard. When the Cutaway is completed as a school bus, see Standard 222 also.

If the front seat attaching hardware is removed for any reason, it must be reinstalled to the specifications in Figure B.

207 The statements below are applicable to the following incomplete vehicle type <u>when equipped with untrimmed front seats:</u>

- **Cutaway**

This vehicle when completed, will conform to Standard 207, Seating Systems, if:

- No changes or modifications are made to the front seat frames, latches, hardware, and padding.
- The weight of each completely trimmed front seat does not exceed the value in Table G.
- No modifications are made to the floor pan in the area of the front seat attachments.
- The front seat and seat belt anchorages are not relocated.

If the front seat attaching hardware is removed for any reason, it must be reinstalled to the specifications in Figure B.

Any seating systems added to this vehicle must conform to the applicable requirements of this Standard.

207 *(Continued next page)*

207 *(Continued)*

207 The statements below are applicable to the following incomplete vehicle types with no front seats:

- **Cutaway**
- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 207, Seating Systems, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

The Cutaway, when equipped with seat delete option, will include both front seat pedestals, pretensioner restraint systems, seat tracks, and a temporary driver's seat. The pretensioner restraint system is attached to the seat track. Therefore, the completed seat assembly must comply with the requirements of Standard 207 and 210.

208 NOTE

An RCM (crash sensor and restraints control module) is located under the driver's seat. Care must be used to avoid damage to the RCM and sensor wiring during removal or reinstallation of the driver's seat. Refer to Figure E.

208 The statements below are applicable to the following incomplete vehicle type when equipped with untrimmed front seats or seat delete option and either the GVWR is over 3856 kg [8500 lb], or the Unloaded Vehicle Weight, when completed, is over 2495 kg [5500 lb]:

- **Cutaway**

A seat delete option includes (does not delete) front seat pedestals, front seat tracks, front seat belt and buckle assemblies mounted to the seat tracks, restraint system, and fasteners, and comes with a temporary transit seat.

This vehicle, when completed, will conform to Standard 208, Occupant Crash Protection, if:

- The seat belt components installed by Ford Motor Company are not removed, relocated, altered, or modified. If the seat belt components are temporarily removed for any reason, they are reinstalled to the specifications for E-Series shown in Figure A and Figure B.
- After the front seats and B-pillar trim are installed, the seat belt system components comply with:
  - Adjustment requirements specified by Section 7.1 as these requirements apply to seat belt fit, to the intersection of the upper torso belt with the lap belt, and to child seat lockability, and
  - Latch mechanism requirements specified by Section 7.2 as these requirements apply to the accessibility of seat belt components, and
  - Latch plate access, retraction, seat belt guides, and hardware requirements specified by Section 7.4 as these requirements apply to comfort and convenience requirements of the seat belt system.
- No actions are taken which would impair the integrity of the seat belt systems and the seat belt warning system.
- The Air Bag Supplemental Restraint System as installed by Ford Motor Company (see Figure E) is not removed, relocated, modified or altered in any way. Ford technical bulletin procedures for relocating the floor-mounted restraints delete resistor and bracket may be followed for vehicles that have an option that deletes the front passenger restraint system.
- The Air Bag Supplemental Restraint System Information Labels that are affixed to the front sunvisors are visible and not altered, modified, or removed.

Any seat belt assemblies added to this vehicle must conform to the applicable requirements of this Standard.

208 The statement below is applicable to the following incomplete vehicle type when equipped with Ford trimmed front seats and either the GVWR is over 3856 kg [8500 lb], or the Unloaded Vehicle Weight, when completed, is over 2495 kg [5500 lb]:

- **Cutaway**

This vehicle, when completed, will conform to Standard 208, Occupant Crash Protection, if:

- The seat belts, seat belt warning system, and attaching hardware installed by Ford Motor Company are not removed, relocated, altered, or modified.
- No actions are taken which would impair the integrity of the belt and seat belt warning systems. (A seat belt warning system is not required for a vehicle with a GVWR over 4536 kg [10,000 lb] or for a bus).
- The Air Bag Supplemental Restraint System as installed by Ford Motor Company (see Figure E) is not removed, relocated, modified or altered in any way. Ford technical bulletin procedures for relocating the floor-mounted restraints delete resistor and bracket may be followed for vehicles that have an option that deletes the front passenger restraint system.
- The Air Bag Supplemental Restraint System Information Labels that are affixed to the front sunvisors are visible and not altered, modified, or removed. If the Air Bag Supplemental Restraint System Information Labels are not affixed to the front visors but shipped in dunnage, the following is necessary to meet Standard 208:
  - The information label must be permanently affixed to each visor in an upright position readable from the driver's or passenger's seating position.
  - If the label is not visible when the visor is stored (up position), an Air Bag Alert Label shall be placed on the visible surface of the visor as specified in Section 4.5.1(c) of Standard 208.

208 *(Continued next page)*

TABLE G
E-SERIES COMPLETED UNTRIMMED SEAT WEIGHT

Description	Maximum Weight (lb)	
	Driver-Side	Passenger-Side
E-Series Captain's Chair – Manual Tracks	59.0	61.0
E-Series Captain's Chair – Manual Tracks – Manual Lumbar	62.0	68.0
E-Series Captain's Chair – Power Tracks – Manual Lumbar	68.0	N/A

208 *(Continued)*

Any seat belt assemblies added to this vehicle must conform to the applicable requirements of this Standard.

208 The statement below is applicable to the following vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 208, Occupant Crash Protection, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity of this vehicle. Any seat belt assemblies added to this vehicle must conform to the applicable requirements of this Standard.

208 Canadian Requirements:

The preceding statements and supporting figures for FMVSS 208 are appropriate compliance representations for CMVSS 208, Occupant Protection in Frontal Impacts, if this incomplete vehicle was manufactured for sale or use in Canada. In such a case, CMVSS 208 paragraphs (13), (14), and (15) are substituted for the reference to FMVSS 208 Section 7.1; CMVSS 208 paragraph (20) should be substituted for the reference to FMVSS 208 Section 7.2; and CMVSS 208 paragraphs (29), (30), (31), (32), (33), (34), (35), (36), (37), (38), (39), and (40) should be substituted for the reference to FMVSS 208 Section 7.4.

WARNING:

Cutaway vehicles are equipped with a front row occupant supplemental restraint system (airbag(s), wiring, and sensors including an RCM under driver's seat) and pyrotechnic buckle pretensioner(s). Deletion of front passenger accommodations including restraints, seat, and pedestal, coupled with the addition of delete resistors in the sensor system circuitry, is available on some vehicles. Modifications to the vehicle forward of or near the crash sensors shown in Figure E may affect the deployment of the airbag(s) and pretensioner(s).

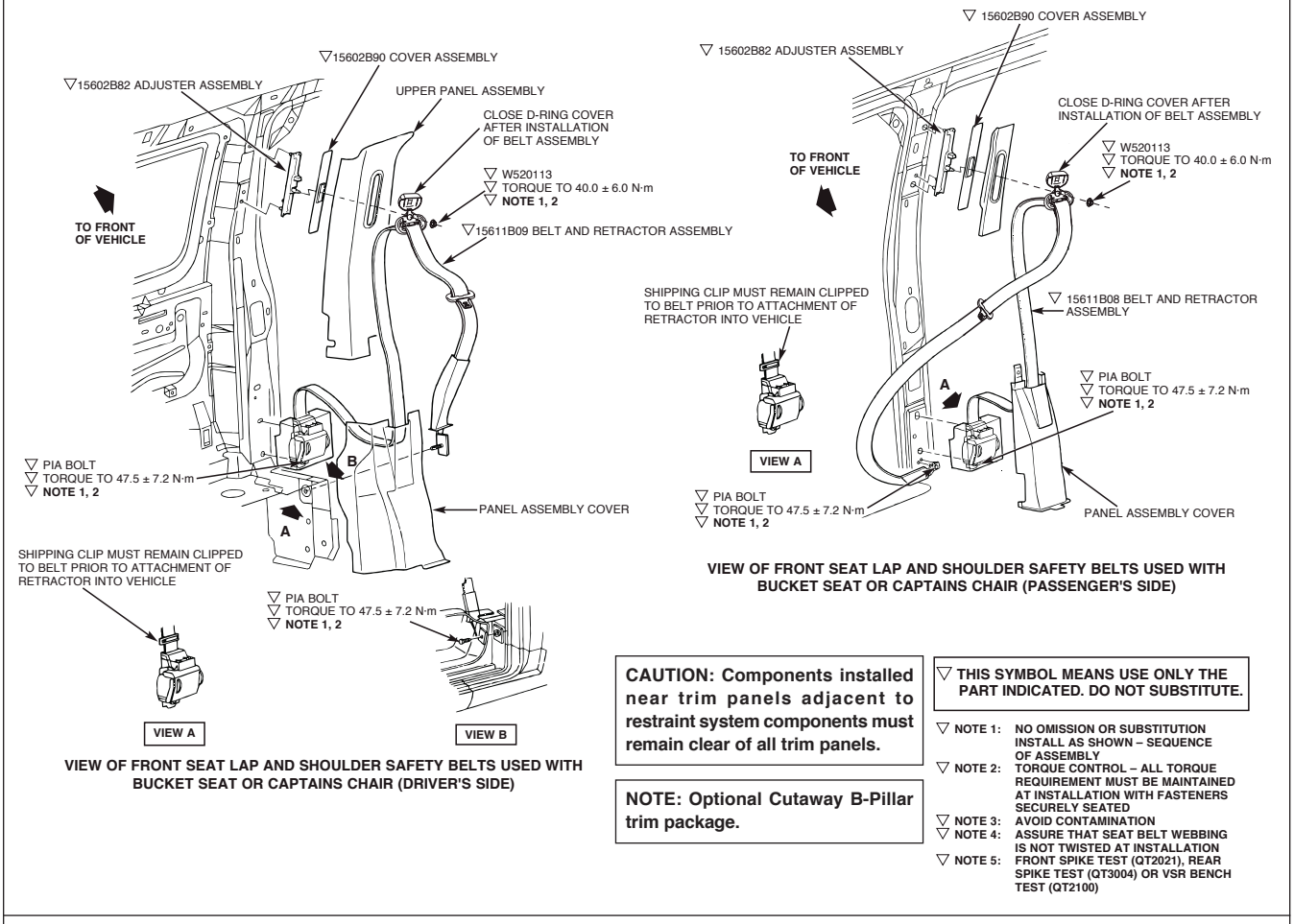
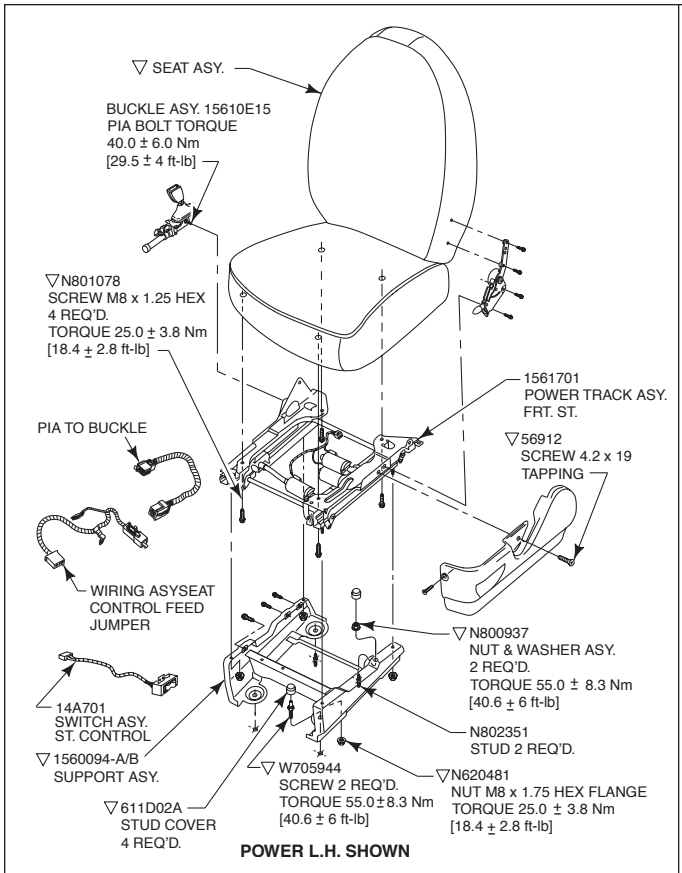
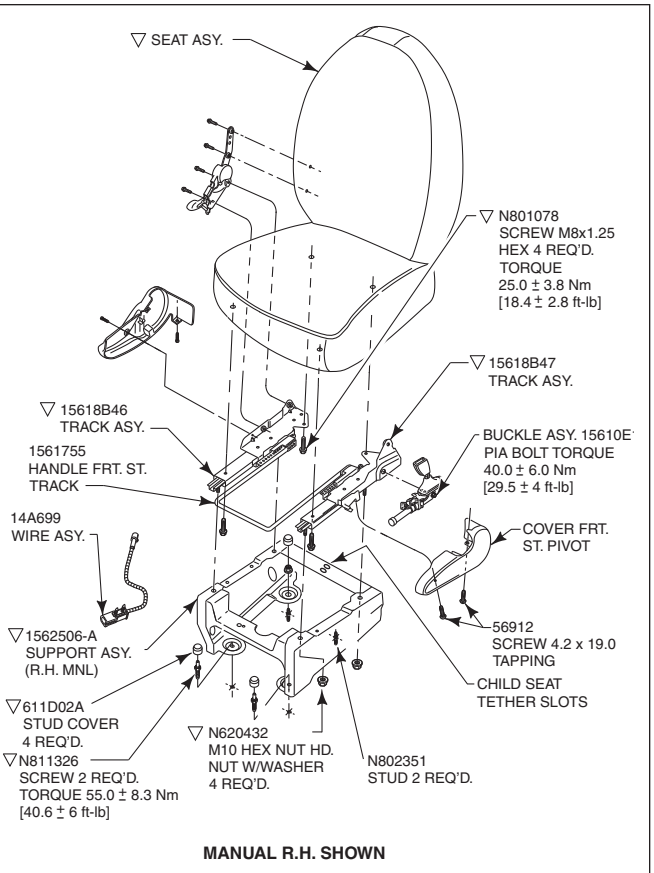

▽15602B90 COVER ASSEMBLY
▽15602B82 ADJUSTER ASSEMBLY
UPPER PANEL ASSEMBLY
CLOSE D-RING COVER AFTER INSTALLATION OF BELT ASSEMBLY
▽ W520113
▽ TORQUE TO 40.0 ± 6.0 N·m
▽ NOTE 1, 2
TO FRONT OF VEHICLE
▽15611B09 BELT AND RETRACTOR ASSEMBLY
▽ PIA BOLT
▽ TORQUE TO 47.5 ± 7.2 N·m
▽ NOTE 1, 2
B
A
PANEL ASSEMBLY COVER
SHIPPING CLIP MUST REMAIN CLIPPED TO BELT PRIOR TO ATTACHMENT OF RETRACTOR INTO VEHICLE
VIEW A
VIEW B
VIEW OF FRONT SEAT LAP AND SHOULDER SAFETY BELTS USED WITH BUCKET SEAT OR CAPTAINS CHAIR (DRIVER'S SIDE)
▽15602B90 COVER ASSEMBLY
▽15602B82 ADJUSTER ASSEMBLY
CLOSE D-RING COVER AFTER INSTALLATION OF BELT ASSEMBLY
▽ W520113
▽ TORQUE TO 40.0 ± 6.0 N·m
▽ NOTE 1, 2
TO FRONT OF VEHICLE
SHIPPING CLIP MUST REMAIN CLIPPED TO BELT PRIOR TO ATTACHMENT OF RETRACTOR INTO VEHICLE
▽15611B08 BELT AND RETRACTOR ASSEMBLY
▽ PIA BOLT
▽ TORQUE TO 47.5 ± 7.2 N·m
▽ NOTE 1, 2
A
VIEW A
▽ PIA BOLT
▽ TORQUE TO 47.5 ± 7.2 N·m
▽ NOTE 1, 2
PANEL ASSEMBLY COVER
VIEW OF FRONT SEAT LAP AND SHOULDER SAFETY BELTS USED WITH BUCKET SEAT OR CAPTAINS CHAIR (PASSENGER'S SIDE)
CAUTION: Components installed near trim panels adjacent to restraint system components must remain clear of all trim panels.
NOTE: Optional Cutaway B-Pillar trim package.
▽ THIS SYMBOL MEANS USE ONLY THE PART INDICATED. DO NOT SUBSTITUTE.
▽ NOTE 1: NO OMISSION OR SUBSTITUTION INSTALL AS SHOWN – SEQUENCE OF ASSEMBLY
▽ NOTE 2: TORQUE CONTROL – ALL TORQUE REQUIREMENT MUST BE MAINTAINED AT INSTALLATION WITH FASTENERS SECURELY SEATED
▽ NOTE 3: AVOID CONTAMINATION
▽ NOTE 4: ASSURE THAT SEAT BELT WEBBING IS NOT TWISTED AT INSTALLATION
▽ NOTE 5: FRONT SPIKE TEST (QT2021), REAR SPIKE TEST (QT3004) OR VSR BENCH TEST (QT2100)
9.5 RADIUS MIN. [.37 IN]
INTERIOR TRIM
UP ADJUSTED POSITION
12.5 MIN. [.50 IN] OVERLAP
6.5 MIN. FROM [.25 IN] RELEASE KNOB TO INTERIOR TRIM
DOWN ADJUSTED POSITION
13.0 MIN. FROM [.50 IN] COVER TO RELEASE KNOB
2.0 MIN. [.08 IN] (WITH DRING LOCATED ON SHLDR.BOLT)
(3) FULL THREAD EXPOSED
1560262 REF.
6.0 MIN. CLEARANCE [.24 IN] TO ALL ADJUSTED POSITIONS
SECTION A
RETRACTOR
6.0 [.24 IN]
SECTION D
3.0 [.12 IN]
UP POSITION
VIEW IN CIRCLE C
C
A
A
B
B
D
FRONT OF VEHICLE
D
MAIN VIEW
6.0 MIN. [.24 IN]
6.0 MIN. CLEARANCE [.24 IN] AROUND BELT PERIPHERY AT MAX. TRAVEL POSITIONS
SEAT BELT WEBBING
6.0 MIN. [.24 IN]
SECTION B
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS
[ ] DIMENSIONS ft-lb OR INCHES

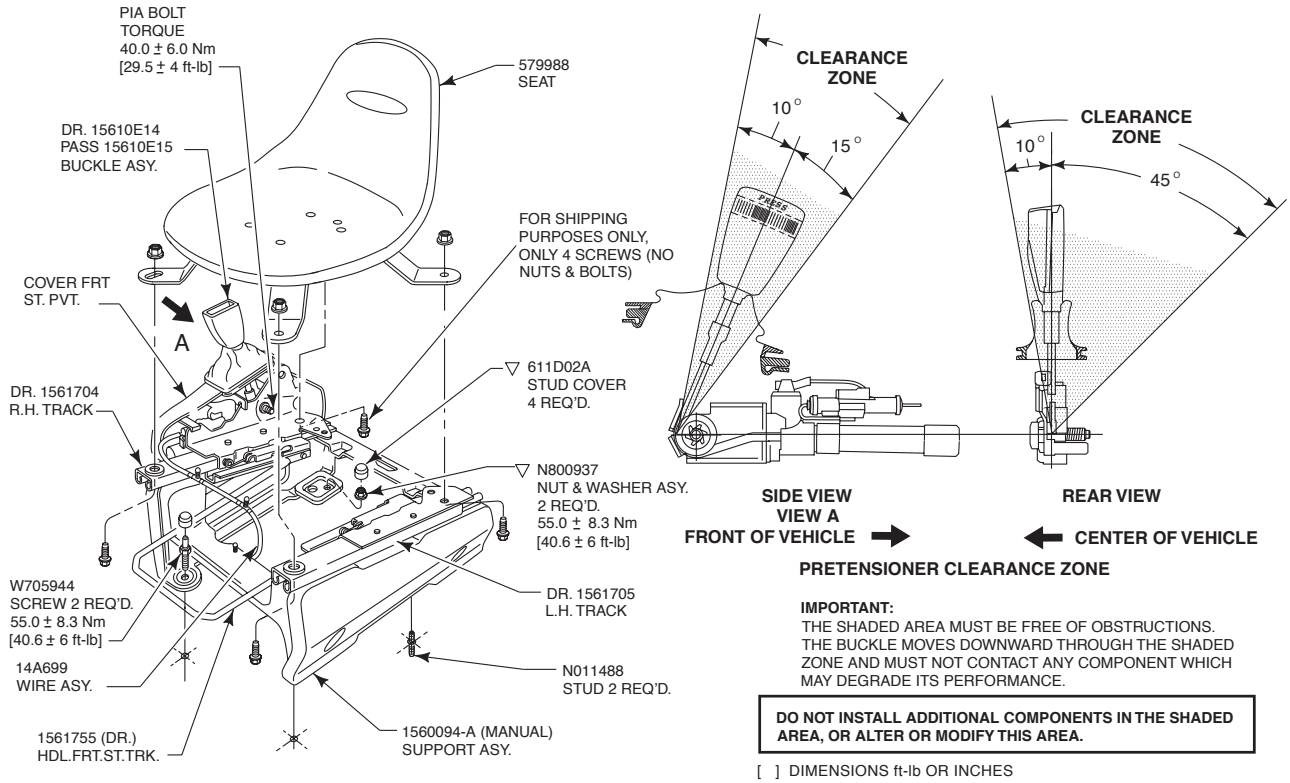
FIGURE A – E-SERIES FRONT SEAT RESTRAINT SYSTEM



E-SERIES DRIVER (L.H.) SEAT INSTALLATION



E-SERIES PASSENGER (R.H.) SEAT INSTALLATION



E-SERIES DRIVER (L.H.) SEAT DELETE OPTION

FIGURE B – E-SERIES FRONT SEAT INSTALLATION

SRP INFORMATION (SEAT POSITION IS 20 mm [0.78 IN] FORWARD OF REARMOST POSITION)				POINT A (SEAT POSITION IS AT THE MIDPOINT OF AVAILABLE TRAVEL)		
	A	B	C	D MIN.	E MAX.	F
DRIVER – SEAT (CUTAWAY)	217.8 [8.57]	113.0 [4.45]	385.3 [15.17]	356.0 [14.01]	67.0 [2.64]	937.4 [36.90]
PASSENGER – SEAT (CUTAWAY)	269.1 [10.59]	113.0 [4.45]	377.3 [14.85]	412.0 [16.22]	65.0 [2.56]	960.1 [37.80]

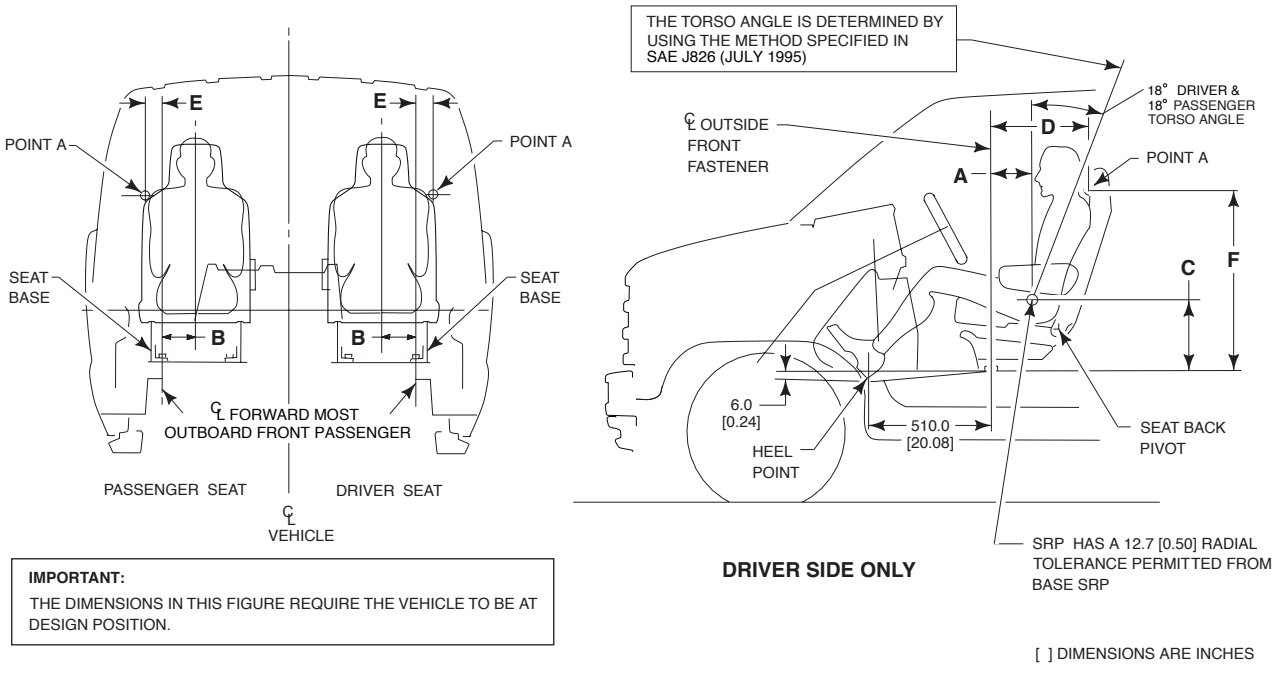


FIGURE C – E-SERIES SEATING REFERENCE POINT (SRP)

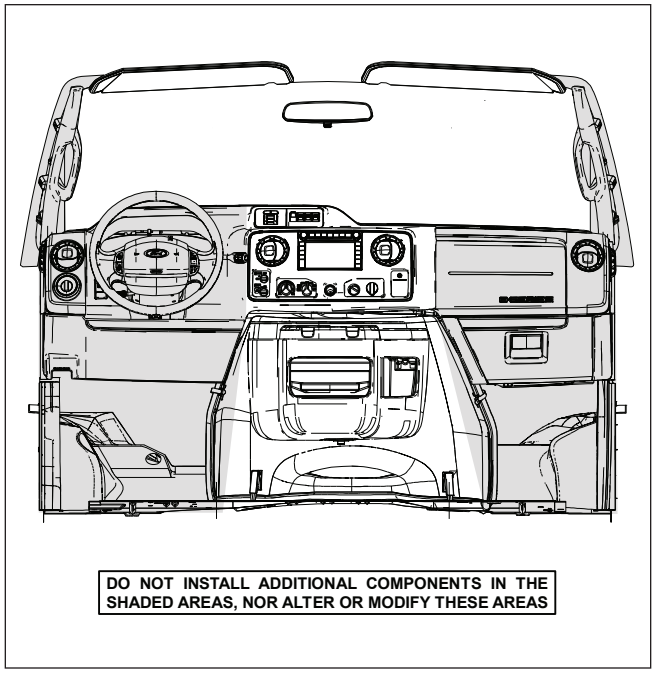


FIGURE D – E-SERIES OCCUPANT PROTECTION ZONE

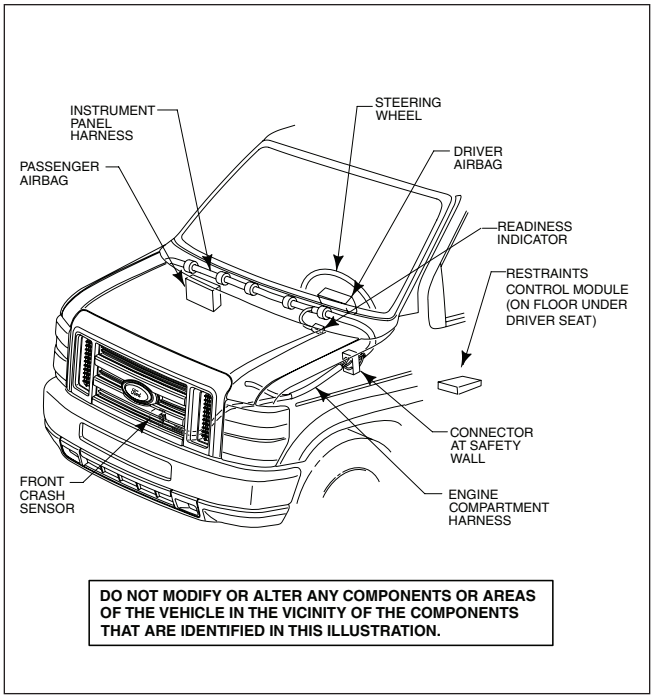

INSTRUMENT PANEL HARNESS
STEERING WHEEL
PASSENGER AIRBAG
DRIVER AIRBAG
READINESS INDICATOR
RESTRAINTS CONTROL MODULE (ON FLOOR UNDER DRIVER SEAT)
CONNECTOR AT SAFETY WALL
FRONT CRASH SENSOR
ENGINE COMPARTMENT HARNESS
DO NOT MODIFY OR ALTER ANY COMPONENTS OR AREAS OF THE VEHICLE IN THE VICINITY OF THE COMPONENTS THAT ARE IDENTIFIED IN THIS ILLUSTRATION.

FIGURE E1 – E-SERIES SUPPLEMENTAL RESTRAINT SYSTEM (Air Bags, Sensors, and Wiring)

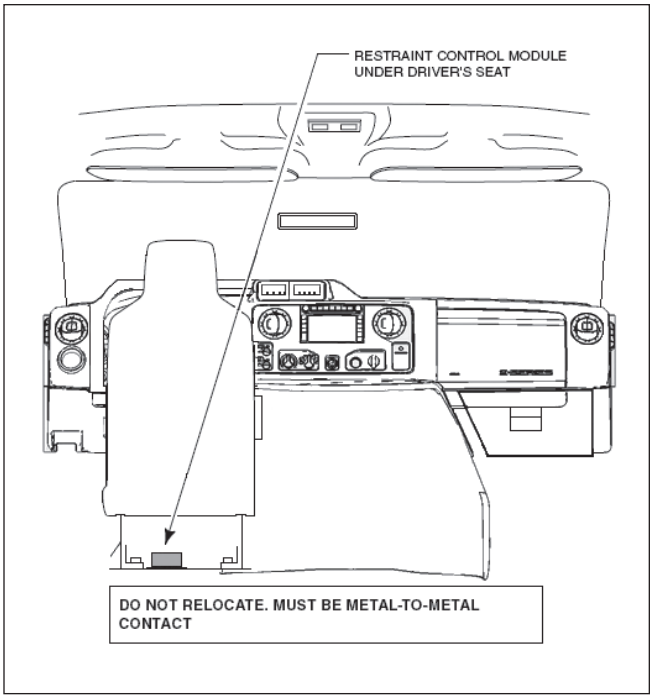


FIGURE E2 – E-SERIES RESTRAINT CONTROL MODULE

Sensor system also connected to pyrotechnic buckle pretensioners (not shown), which are assembled to the front seat pedestals. Passenger air bag and buckle pretensioner replaced by cover/delete resistor and bracket/delete resistor, respectively, on vehicles that have an option that deletes the front passenger restraint system.

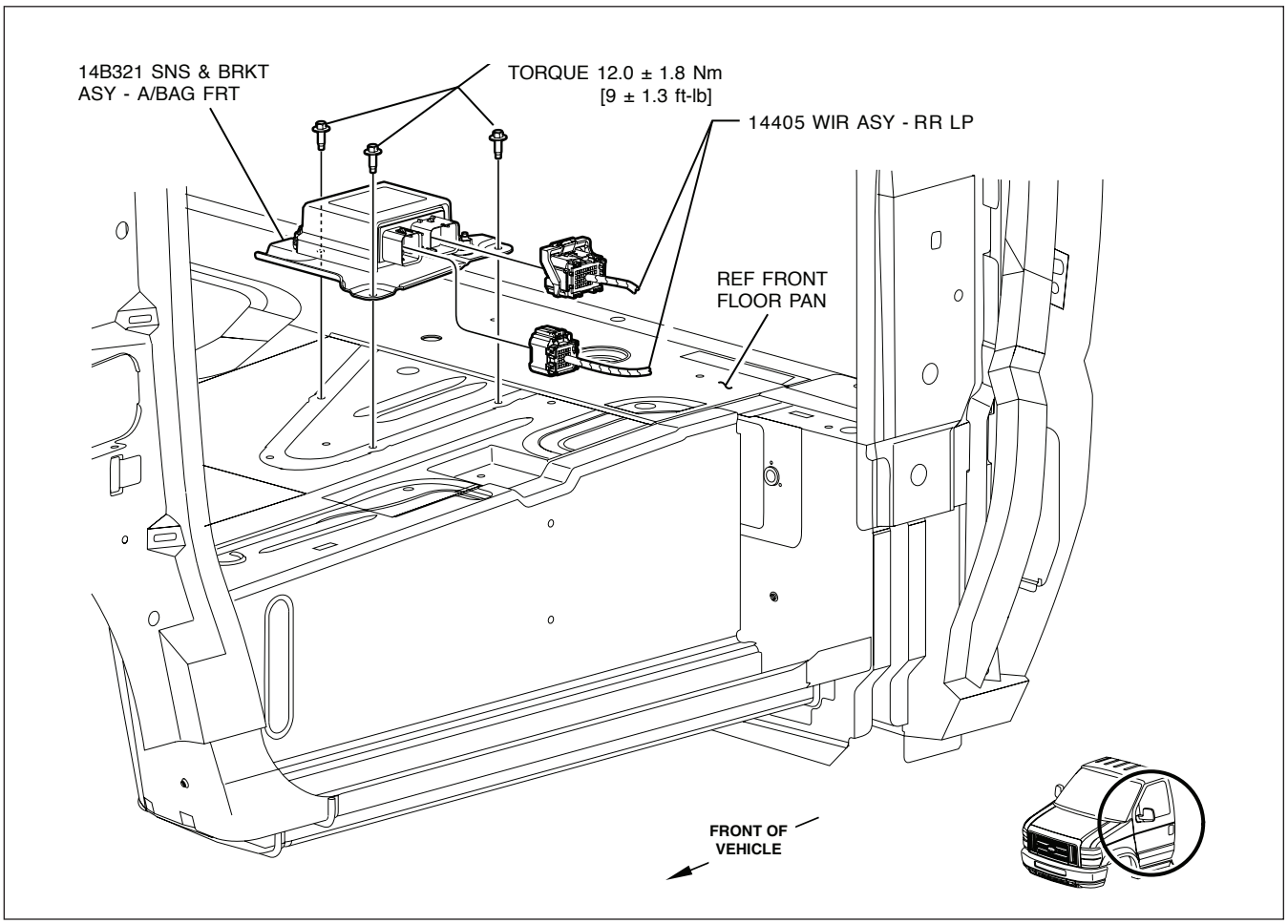


FIGURE E3 – E-SERIES RESTRAINT CONTROL MODULE

209 The statements below are applicable to the following incomplete vehicle type <u>with front seat(s):</u>

- **Cutaway**

This vehicle, when completed, will conform to Standard 209, Seat Belt Assemblies, if:

- No alterations or replacements are made to the seat belt assemblies and attaching hardware.
- No action is taken that would impair the integrity of the seat belt system provided.

Any seat belt assemblies added to a vehicle must conform to the requirements of this Standard.

209 The statement below is applicable to the following incomplete vehicle type <u>with no front seats:</u>

- **Cutaway**

Conformity with the pelvic restraint, upper torso restraint, release, adjustment, and webbing requirements of Standard 209, Seat Belt Assemblies, as specified in Section 4.1 (b), (c), (e), (g), and (h), respectively, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with these requirements of Standard 209. However, Ford Motor Company represents that the seat belt assemblies provided by Ford Motor Company conform to the applicable single occupancy hardware, attachment hardware, strap, marking, installation instructions, usage and maintenance instructions, workmanship, webbing performance, hardware performance, and assembly performance requirements detailed in the remaining paragraphs of the standard not specified above, provided no alterations or replacements are made to the seat belt assemblies and attaching hardware, as provided by Ford Motor Company, and further provided that no action is taken by subsequent stage manufacturers to impair the integrity of the seat belt system provided. Any additional seat belt assemblies installed must conform to the requirements of this Standard.

209 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 209, Seat Belt Assemblies, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

209 Canadian Requirements:

The preceding statements for FMVSS 209 are appropriate compliance representations for CMVSS 209, Seat Belt Assemblies, if this incomplete vehicle was manufactured for sale or use in Canada.

210 The statements below are applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Standard 210, Seat Belt Assembly Anchorages, if:

- No alterations are made to the front seat belt anchorages, front seat belt assemblies, floor pan, floor pan reinforcements, or body mounts.

The incomplete Cutaway with no front seats must have completed front seats installed that conforms to the seat location criteria shown in Figure C.

The incomplete Cutaway must have a seat belt anchorage system installed for each additional designated seating position that conforms to the applicable requirements of this Standard.

Cutaway vehicles may have additional seat belt anchorages for designated seating positions on optional seats not provided on incomplete vehicles. These locations apply to specific hardware and designated seating positions used in Ford vehicles. If these anchorages are used without the appropriate Ford seats, seat belt systems, and hardware, Ford Motor Company makes no representation as to conformity with this Standard.

210 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 210, Seat Belt Assembly Anchorages, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

210.1 Canadian Requirements:

The statement below is applicable to school buses:

This vehicle, when completed, will conform to Standard 210.1, User-Ready Tether Anchorages for Restraint Systems and Booster Seats, if:

- No alternations are made to the front passenger seat tether anchorages and access to the anchorages is not restricted; the front passenger seat, its anchorages, the floor pan and its reinforcements are not altered; and no seats are added.

Because the addition of seats would change compliance with this Standard, Ford Motor Company makes no representations as to conformity with this Standard for any vehicle that has seats added by intermediate or final stage manufacturers.

210.2 Canadian Requirements:

The statement below is applicable to school buses:

This vehicle, when completed, will conform to Standard 210.2, Lower Universal Anchorage Systems for Restraint Systems and Booster Seats, if:

- No alterations are made to the front passenger seat and no seats are added.

Because the addition of seats would change compliance with this Standard, Ford Motor Company makes no representations as to conformity with this Standard for any vehicle that has seats added by intermediate or final stage manufacturers.

213 The statement below is applicable to all incomplete vehicle types:

Conformity with Standard 213, Child Restraint Systems, cannot be determined based upon the components supplied on the incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard. Any child restraint system that is added or incorporated into the design of a designated seating position must conform to the requirements of this Standard.

217 The statement below is applicable to the Cutaway when completed as a bus (including school bus):

Conformity with Standard 217, Bus Emergency Exits and Window Retention and Release, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard other than that the front door windows will comply with the Section 5.1 requirements of this Standard if no modifications, alterations, or replacements are made to the window glazing materials, window mounting system, or the surrounding door structure as provided by Ford Motor Company.

217 Canadian Requirements:

The preceding statements for FMVSS 217 are appropriate compliance representations for CMVSS 217, Bus Window Emergency Exits and Window Retention and Release, when a vehicle is completed as a bus (not school bus) and if this incomplete vehicle was manufactured for sale or use in Canada. In such a case, CMVSS 217 paragraphs (2) and (2.1) are substituted for the reference to FMVSS 217 Section 5.1. When an E-Series Cutaway is completed as a school bus, Ford Motor Company makes no representation as to conformity to this Standard.

220 The statements below are applicable to the Cutaway equipped with the School Bus Prep Package when completed as a school bus:

The Cutaway body structure as manufactured by Ford, does not meet the strength requirements of FMVSS 220, School Bus Rollover Protection; accordingly Ford Motor Company makes no representation as to conformity of the completed vehicle with this Standard.

221 The statements below are applicable to the Cutaway equipped with School Bus Prep Package when completed as a school bus:

This vehicle when completed, will conform to Standard 221, School Bus Body Joint Strength, if:

- No alterations or modifications are made to the body panel joints as manufactured by Ford Motor Company from the forwardmost point of the windshield rearward.
- The passenger first row seating reference point is located 762.0 mm [30.00 inch] or more, rearward of the back of the Cutaway body.

Any additional maintenance panels or body panel joints that are added to this vehicle must comply with the requirements of this Standard.

222 The statement below is applicable to the Cutaway equipped with the School Bus Prep Package when completed as a school bus:

Conformity with Standard 222, School Bus Passenger Seating and Crash Protection, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

301 NOTE

The terms “body” or “body structure”, in the 301 statements that follow include not only the basic body or body structure but also any equipment permanently attached to that body or body structure installed by the subsequent stage manufacturer.

301 INFORMATION

The Unloaded Vehicle Weight of the completed vehicle may significantly affect its capability to meet the requirements of FMVSS 301, Fuel System Integrity. Completed vehicles manufactured by Ford Motor Company that are tested to demonstrate compliance with Standard 301 are loaded pursuant to S7.1.6 of the Standard. The test weights of these vehicles comprise the Unloaded Vehicle Weights including the weights of all available regular production options plus the loads specified by S7.1.6. These test weights are less than the respective designated Gross Vehicle Weight Ratings. In addition to the specific statements below, refer to the Design Recommendation section of the *Ford Truck Body Builders Layout Book* for fuel system information to assist in designing fuel systems and the Second Unit Body Attachment recommendations for information to aid in designing second unit bodies and their attachments to be compatible with E-Series vehicles.

301 The statements below are applicable to the following incomplete vehicle types:

- **E-Series SRW Cutaway equipped with School Bus Prep Package or Multifunction School Activity Bus (MFSAB) Prep Package, and completed as a school bus**

This vehicle, when completed, will conform to Standard 301, Fuel System Integrity, if:

- The following fuel system components as installed by Ford Motor Company are not removed, relocated, altered, or modified in any way except as specified in the following representations:
  - Fuel tank(s) and attachment hardware including sending unit, vapor valve, fuel tank shield, fuel tank surface patch, pressure transducer and in-tank electric fuel pump
  - Fuel filler cap, pipe(s), hose(s), any provided protective wrap, and attachment hardware
  - Fuel lines, routing, and attachments
  - Vapor lines and carbon canister – (gasoline engine only)
  - Fuel pump
  - Fuel pump relay (gasoline engine only)
  - Fuel filter
  - Fuel shut-off switch (fuel pump relay)
  - The two Outboard Frame Reinforcements, two Lower Frame Flange Reinforcements, one Upper Frame Flange Reinforcement, and two extra Back-To-Back Crossmembers, shown in Figures F1 and F2, used in the SRW School Bus Prep Package.
  - Required rear crossmembers must be installed either in design positions as shown in Figure F using torque values from SVE Bulletin Q-182 or in alternate locations shown in SVE Bulletin Q-184. Additional installation information available in Ford Shop Manual or by contacting Body Builders Advisory Service.
  - The four Required Frame Holes must be drilled to size, location, and orientation on frame as specified in Figure G1 (E-350 School Bus only).
  - The E-350 SRW rear bumper is manufactured and installed to the specifications found in Figure G2 (E-350 School Bus only).
- School bus requires use of Ford-supplied body mounts or equivalent
- The body installed by a subsequent stage manufacturer and the Ford installed fuel system components are located and mounted as follows:

301 *(Continued next page)*

301 *(Continued)*

– The body is mounted securely and is so designed (by following structural and package guidelines illustrated in Figure H) that when the completed vehicle is tested in any manner specified by applicable provisions of Standard 301,

(a) body components and attaching hardware do not contact any fuel system component at any time (other than at the points where the fuel system is permanently attached to the body), and,

(b) body system deformation or movement relative to the frame does not cause any fuel system component to be penetrated, disconnected, or otherwise damaged.

– The rear end of the body (excluding the rear bumper) installed by a subsequent stage manufacturer does not extend beyond (overhang) the rear edge of the vehicle frame or frame extension. Any extension of the vehicle frame must be constructed and attached so as to perform as a continuation of the vehicle frame when the completed vehicle is tested in any manner specified by applicable provisions of Standard 301.

– The fuel filler cap, pipe(s), hose(s) and attachment hardware are installed as shown in Figure H for E-350/450 vehicles. All components must be securely retained to remain intact when the completed vehicle is tested in any manner specified by applicable provisions of Standard 301.

– Body installations using flexible attaching systems require use of a flexible/adjustable attachment in conjunction with a shear plate, both mounted aft of the fuel tank. Flexible/adjustable attachments located within 10 inches of the rear surface of the fuel tank are required to be either an inverted U-bolt, a J-hook, or a chassis clamp.

- No other alteration or modification made to the incomplete vehicle as manufactured by Ford Motor Company and no other components or structure installed by a subsequent stage manufacturer result in penetration, separation, or other damage to the fuel system or any portion thereof when the vehicle is tested in any manner specified by applicable provisions of Standard 301.†
- The completed vehicle's Unloaded Vehicle Weight does not exceed the value designated in Table A corresponding to the model and wheelbase.
- If a fuel line is to be disconnected, refer to the appropriate Ford Service Manual for proper removal and installation procedures.
- When welding near fuel system components, all metallic components must be adequately shielded and protected from heat or weld splatter. All non-metallic components must be removed

NOTE: Crossmember Installation

- Required part will be provided, but not installed in vehicle position.
- Crossmember will be shipped in a temporary position on top of rear frame rail. Permanent installation hardware will be included in dunnage box.
- Crossmember may not be located closer to fuel tank than design position shown in Figures F1 and F2.

† *Temporary removal of the front bumper and front bumper mounting system during manufacture and reinstallation in accordance with the instructions provided in the Ford Truck Shop Manual should not adversely affect compliance of the completed vehicle to Standard 301.*

301 The statements below are applicable to the following incomplete vehicle types:

- **DRW E-350 and E-450 Cutaway equipped with School Bus Prep Package or Multifunction School Activity (MFSAB) Prep Package, and completed as a school bus**

This vehicle when completed will conform to Standard 301, Fuel System Integrity, if:

- The following fuel components as installed by Ford Motor Company are not removed, altered, or modified in any way except as specified in the following representations:
  – Fuel tank and attachment hardware, including sender unit, vapor valve, fuel tank shield and fuel tank surface patch
  – Fuel filler cap, pipe(s), hose(s), any provided protective wrap, and attaching hardware
  – Fuel pump
  – Fuel filter
  – Fuel water separator, fuel filter/primer, fuel line heater, and injection pump
  – Fuel shut-off switch (fuel pump relay)
  – The two Lower Frame Flange Reinforcements and one Upper Frame Reinforcement
  – The Required Frame Holes must be drilled to size, location, and orientation on frame as specified in Figure G1 (E-350 only).
  – Requires use of Ford-supplied body mounts or equivalent
- The completed vehicle when loaded to the requirements of Section 7.1.6 (c) does not exceed the GVWR or GAWR's.
- The E-350 DRW and E-450 floor structure of the Second Unit Body and rear bumper are manufactured and installed to the specifications found in Figures J1 and J2.
- The fill hoses, hose clamps, ground strap, and fuel sender unit must be installed to the specification on Figure I.
- No other alteration or modification made to the incomplete vehicle as manufactured by Ford Motor Company and no other components or structure installed by a subsequent stage manufacturer result in penetration, separation, or other damage to the fuel system or any portion thereof when the vehicle is tested in any manner specified by applicable provisions of Standard 301.†

301 Canadian Requirements:

The Canadian loading requirements are provided in Section 3.3 of *Test Method 301 - Fuel System Integrity*, revised: February 8, 2001, and should be substituted wherever references to FMVSS 301, Section 7.1.6, loading requirements have been made in the statements of conformity for Standard 301.

301.1 The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with CMVSS Standard 301.1, LPG Fuel System Integrity. Ford Motor Company makes no representation as to conformity with this Standard.

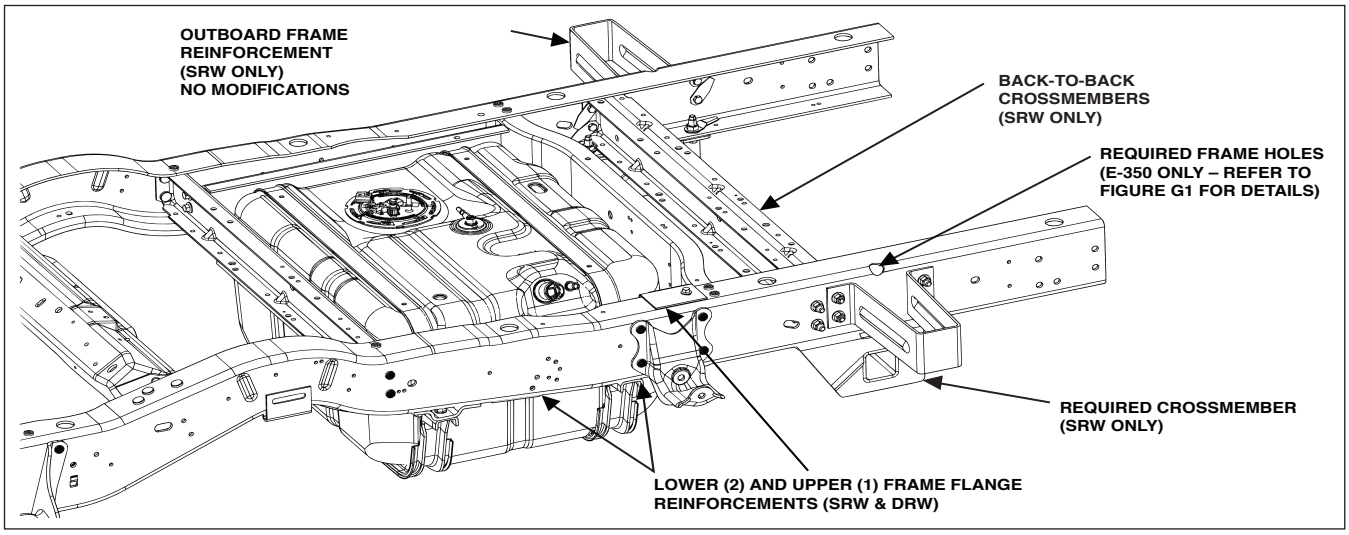


FIGURE F1 – E-SERIES CUTAWAY WITH SCHOOL BUS PREP PACKAGE

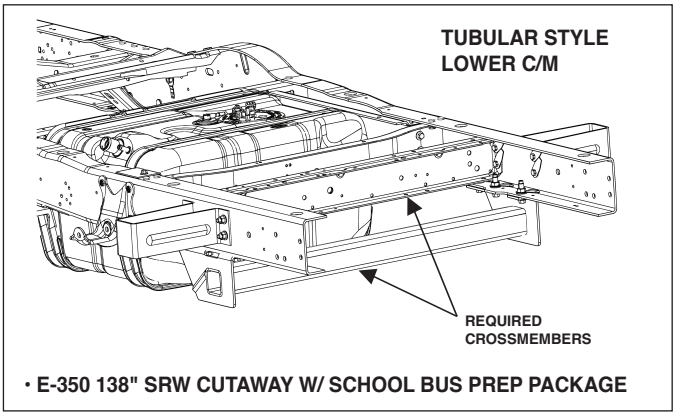


FIGURE F2 – E-350 CUTAWAY REQUIRED REAR CROSSMEMBER FOR SRW SCHOOL BUS PREP PACKAGE

301.2 The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with CMVSS Standard 301.2, CNG Fuel System Integrity. Ford Motor Company makes no representation as to conformity with this Standard.

302 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform with Standard 302, Flammability of Interior Materials, if no alterations are made to those components covered by the Standard which are installed by Ford Motor Company and all components covered by Standard 302, which are added to the incomplete vehicle by subsequent stage manufacturers meet the flammability requirements of the Standard.

302 The statement below is applicable to the following incomplete vehicle type:

- **E-Series Basic (Stripped) Chassis**

Conformity with Standard 302, Flammability of Interior Materials, cannot be determined based upon the components supplied on this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard. However, Ford Motor Company does represent that the items covered by Standard 302 when provided, are manufactured to conform to the requirements of Standard 302.

303 U.S. Requirements:

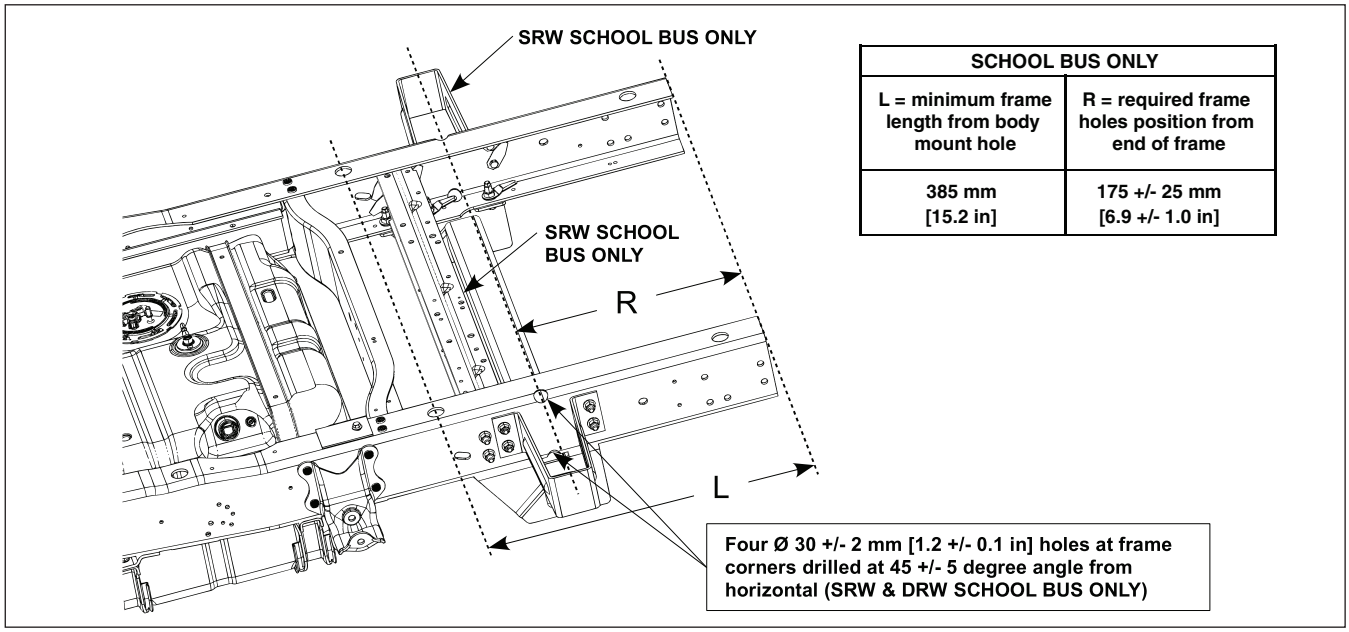
The statement below is applicable to any School Bus Prep Package regardless of GVWR:

This incomplete vehicle does not comply with Standard 303, Fuel System Integrity of Compressed Natural Gas Vehicles. Ford Motor Company makes no representation as to conformity with this Standard.

304 U.S. Requirements:

The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with Standard 304, Compressed Natural Gas Fuel Container Integrity. Ford Motor Company makes no representation as to conformity with this Standard.


SRW SCHOOL BUS ONLY
SRW SCHOOL BUS ONLY
R
L
Four Ø 30 +/- 2 mm [1.2 +/- 0.1 in] holes at frame corners drilled at 45 +/- 5 degree angle from horizontal (SRW & DRW SCHOOL BUS ONLY)

SCHOOL BUS ONLY	
L = minimum frame length from body mount hole	R = required frame holes position from end of frame
385 mm [15.2 in]	175 +/- 25 mm [6.9 +/- 1.0 in]

FIGURE G1 – E-350 CUTAWAY WITH SCHOOL BUS PREP PACKAGE

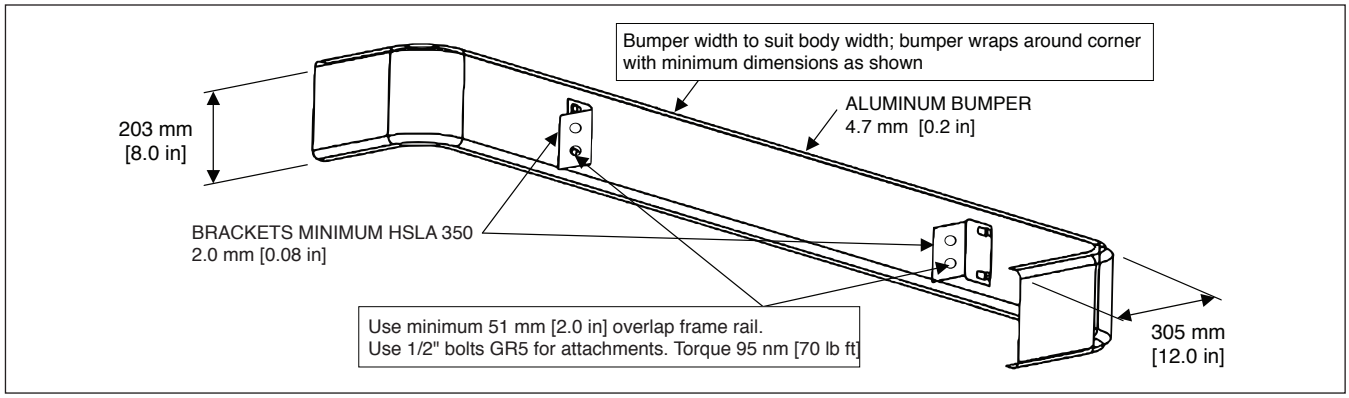

Bumper width to suit body width; bumper wraps around corner with minimum dimensions as shown
ALUMINUM BUMPER
4.7 mm [0.2 in]
203 mm
[8.0 in]
BRACKETS MINIMUM HSLA 350
2.0 mm [0.08 in]
Use minimum 51 mm [2.0 in] overlap frame rail.
Use 1/2" bolts GR5 for attachments. Torque 95 nm [70 lb ft]
305 mm
[12.0 in]

FIGURE G2 – E-350 SRW CUTAWAY WITH SCHOOL BUS PREP PACKAGE

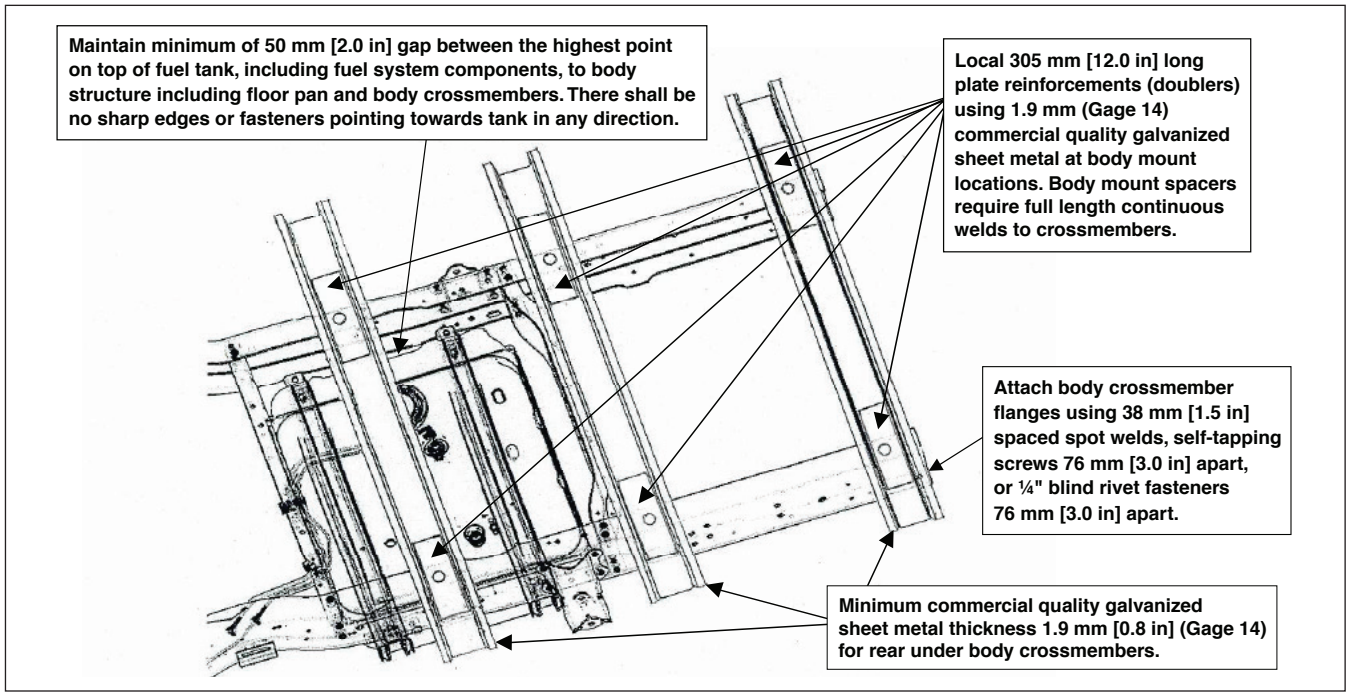

Maintain minimum of 50 mm [2.0 in] gap between the highest point on top of fuel tank, including fuel system components, to body structure including floor pan and body crossmembers. There shall be no sharp edges or fasteners pointing towards tank in any direction.
Local 305 mm [12.0 in] long plate reinforcements (doublers) using 1.9 mm (Gage 14) commercial quality galvanized sheet metal at body mount locations. Body mount spacers require full length continuous welds to crossmembers.
Attach body crossmember flanges using 38 mm [1.5 in] spaced spot welds, self-tapping screws 76 mm [3.0 in] apart, or ¼" blind rivet fasteners 76 mm [3.0 in] apart.
Minimum commercial quality galvanized sheet metal thickness 1.9 mm [0.8 in] (Gage 14) for rear under body crossmembers.

FIGURE H – E-350 SRW CUTAWAY WITH SCHOOL BUS PREP PACKAGE

403 The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with Standard 403, Platform Lift Systems for Motor Vehicles. Ford Motor Company makes no representation as to conformity with this Standard.

404 The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with Standard 404, Platform Lift Installations in Motor Vehicles. Ford Motor Company makes no representation as to conformity with this Standard.

Part 393.67 Parts and Accessories Necessary for Safe Operation – Liquid Fuel Tanks

The 55 gallon fuel tank supplied on an E-Series Stripped Chassis and Cutaway will conform to the Part 393.67, Parts and Accessories Necessary for Safe Operation – Liquid Fuel Tanks, if the fuel tank as provided by Ford Motor Company is not altered on the completed vehicle.

Part 565 U.S. Requirements:

This vehicle, when completed, will conform to Part 565, Vehicle Identification Number (VIN) Requirements, if the vehicle identification number printed on the label affixed to the cover of this manual is mounted and displayed in accordance with the requirements of this Standard.

Part 565.13 The statement below is applicable to the following incomplete vehicle type:

- **Cutaway**

This vehicle, when completed, will conform to Part 565.13, General Requirements, if the Vehicle Identification Number (VIN) tag mounted on the top of the instrument panel is not removed, altered, or modified and no actions are taken by the subsequent stage manufacturer that would obstruct the readability of the Vehicle Identification Number tag mounted on the top of the instrument panel.

Part 567 / CMVSR Section 6.6

The statement below is applicable to all incomplete vehicle types:

This incomplete vehicle does not comply with the intermediate and final stage manufacturer requirements of Part 567 - Certification, nor the Canadian Motor Vehicle Safety Regulations, Section 6.6 - Final-stage Manufacturer's Compliance Label. It is the responsibility of the intermediate and final stage manufacturers to provide additional labeling to meet these requirements. Ford Motor Company makes no representation as to conformity.

1106 Canadian Requirements:

This incomplete vehicle does not comply with Standard 1106, Noise Emissions, Section 2 - Exterior Sound Level nor Section 5 - Interior Noise Level, Ford Motor Company makes no representation as to conformity with this Standard.

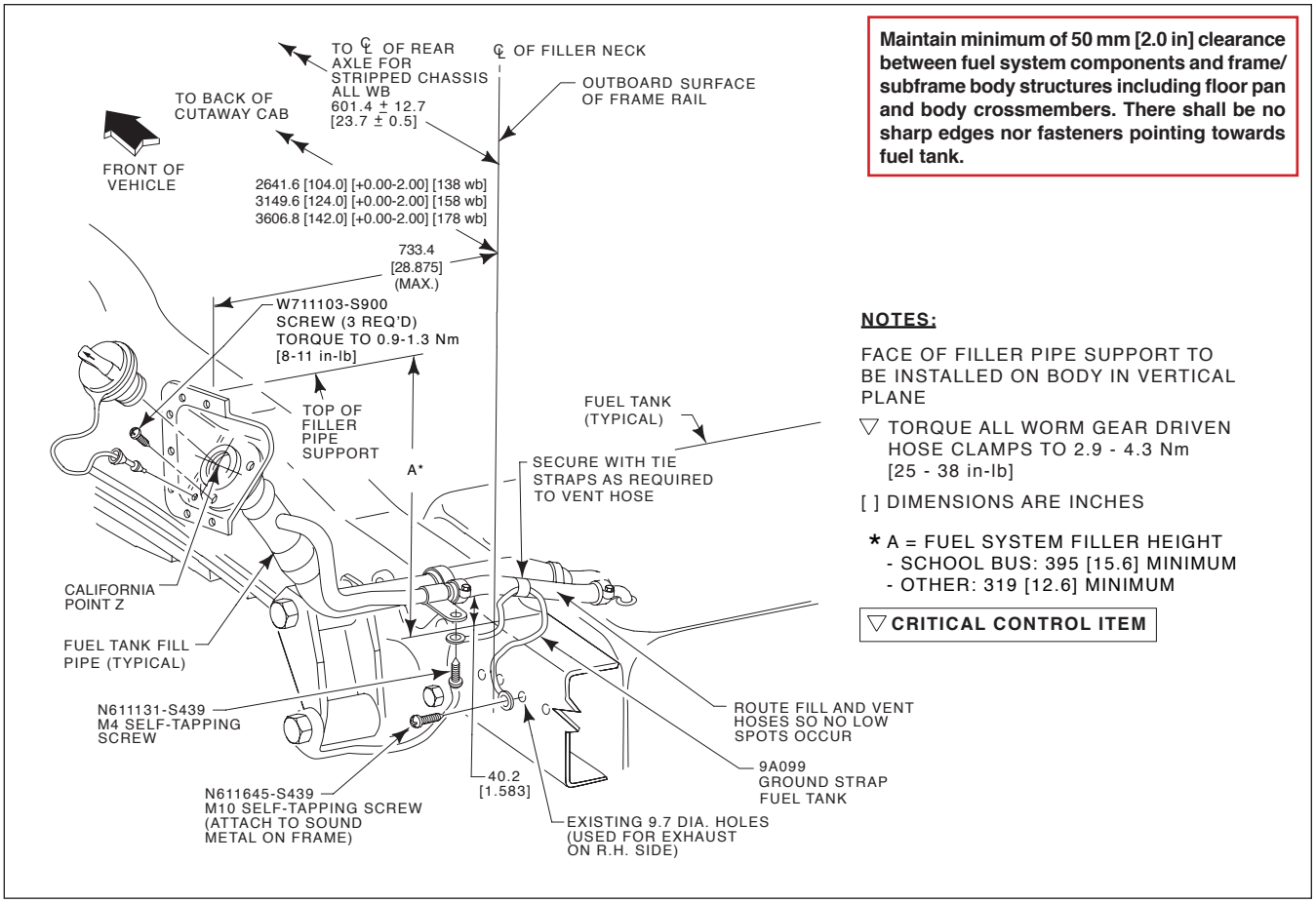

TO ℄ OF REAR AXLE FOR STRIPPED CHASSIS ALL WB 601.4 ± 12.7 [23.7 ± 0.5]
℄ OF FILLER NECK
OUTBOARD SURFACE OF FRAME RAIL
TO BACK OF CUTAWAY CAB
FRONT OF VEHICLE
2641.6 [104.0] [+0.00-2.00] [138 wb]
3149.6 [124.0] [+0.00-2.00] [158 wb]
3606.8 [142.0] [+0.00-2.00] [178 wb]
733.4 [28.875] (MAX.)
W711103-S900 SCREW (3 REQ'D) TORQUE TO 0.9-1.3 Nm [8-11 in-lb]
TOP OF FILLER PIPE SUPPORT
A*
FUEL TANK (TYPICAL)
SECURE WITH TIE STRAPS AS REQUIRED TO VENT HOSE
CALIFORNIA POINT Z
FUEL TANK FILL PIPE (TYPICAL)
N611131-S439 M4 SELF-TAPPING SCREW
N611645-S439 M10 SELF-TAPPING SCREW (ATTACH TO SOUND METAL ON FRAME)
40.2 [1.583]
EXISTING 9.7 DIA. HOLES (USED FOR EXHAUST ON R.H. SIDE)
ROUTE FILL AND VENT HOSES SO NO LOW SPOTS OCCUR
9A099 GROUND STRAP FUEL TANK
Maintain minimum of 50 mm [2.0 in] clearance between fuel system components and frame/subframe body structures including floor pan and body crossmembers. There shall be no sharp edges nor fasteners pointing towards fuel tank.
NOTES:
FACE OF FILLER PIPE SUPPORT TO BE INSTALLED ON BODY IN VERTICAL PLANE
▽ TORQUE ALL WORM GEAR DRIVEN HOSE CLAMPS TO 2.9 - 4.3 Nm [25 - 38 in-lb]
[ ] DIMENSIONS ARE INCHES
* A = FUEL SYSTEM FILLER HEIGHT
- SCHOOL BUS: 395 [15.6] MINIMUM
- OTHER: 319 [12.6] MINIMUM
▽ CRITICAL CONTROL ITEM

FIGURE I – E-350/450 CUTAWAY AND BASIC (STRIPPED) CHASSIS FUEL FILLER PIPE INSTALLATION FOR AFT-OF-AXLE FUEL TANK

ITEM	PART NAME	MATERIAL	QUANTITY
1	SUPPORT – BODY ISOLATOR TO CROSS SILL L.H.	6.35mm [0.25] HRLC STEEL	1
2	SUPPORT – BODY ISOLATOR TO CROSS SILL R.H.	6.35mm [0.25] HRLC STEEL	1
3	BRACKET – SPACER FOR ISOLATOR SUPPORT TO FRONT CROSS SILL	6.35mm [0.25] HRLC STEEL	2
4	BRACKET – SPACER FOR ISOLATOR SUPPORT TO SECOND CROSS SILL	6.35mm [0.25] HRLC STEEL	2
5	SILL – FRONT CROSS	1.9mm [0.075] 14 GA. HRLC STEEL	1
6	SILL – SECOND CROSS	1.9mm [0.075] 14 GA. HRLC STEEL	1
7	SILL – THIRD & FOURTH CROSS	1.9mm [0.075] 14 GA. HRLC STEEL	2
8	GUSSET – CROSS SILL TO OUTER SUPPORT L.H.	1.9mm [0.075] 14 GA. HRLC STEEL	4
9	GUSSET – CROSS SILL TO OUTER SUPPORT R.H.	1.9mm [0.075] 14 GA. HRLC STEEL	4
10	SUPPORT – CROSS SILL OUTER L.H.	3.0mm [0.120] 11 GA. HRLC STEEL	1
11	SUPPORT – CROSS SILL OUTER R.H.	3.0mm [0.120] 11 GA. HRLC STEEL	1
12	BUMPER – REAR	4.7mm [0.187] HRLC STEEL	1
13	BRACKET – BUMPER TO FRAME L.H.	6.35mm [0.25] HRLC STEEL	1
14	BRACKET – BUMPER TO FRAME R.H.	6.35mm [0.25] HRLC STEEL	1
15	FLOOR	1.9mm [0.075] 14 GA. HRLC STEEL	1
16	HOUSING – FUEL FILL NECK	1.9mm [0.075] 14 GA. HRLC STEEL	1
17	CORNER BRACE – BUMPER TO FRAME	5.3mm [0.21] 5 GA. HRLC STEEL	2

BLIND RIVET FASTENERS

The components listed below must be attached together with a “Blind Rivet” fastener, 6.3 [.25] diameter with a shear strength of 3600 lb and tensile strength of 2000 lb, or equivalent weld. Each fastener will require a 6.91 [.272] to 6.63 [.261] dia. hole.

PARTS TO BE FASTENED	NUMBER OF FASTENERS	SPACING / LOCATION
Item 5 to 15	48 estimated	101.6mm [4.00] centers on front and rear flange – 50.8mm [2.00] stagger on front and rear flange
Item 6 to 15	48 estimated	
Item 7 to Item 15	47 estimated	50.8mm [2.00] centers
Item 5 to Items 8 or 9	6	101.6mm [4.00] centers
Item 6 to Items 8 or 9	6	101.6mm [4.00] centers staggered top to bottom of cross-sill
Item 7 to Items 8 or 9	6	101.6mm [4.00] centers staggered top to bottom of cross-sill
Items 8 or 9 to Items 10 or 11	3 on vertical side of item 10 or 11, 1 on bottom flange	3 fasteners are 76.2mm [3.00] centers
Item 16		50.8mm [2.00] centers

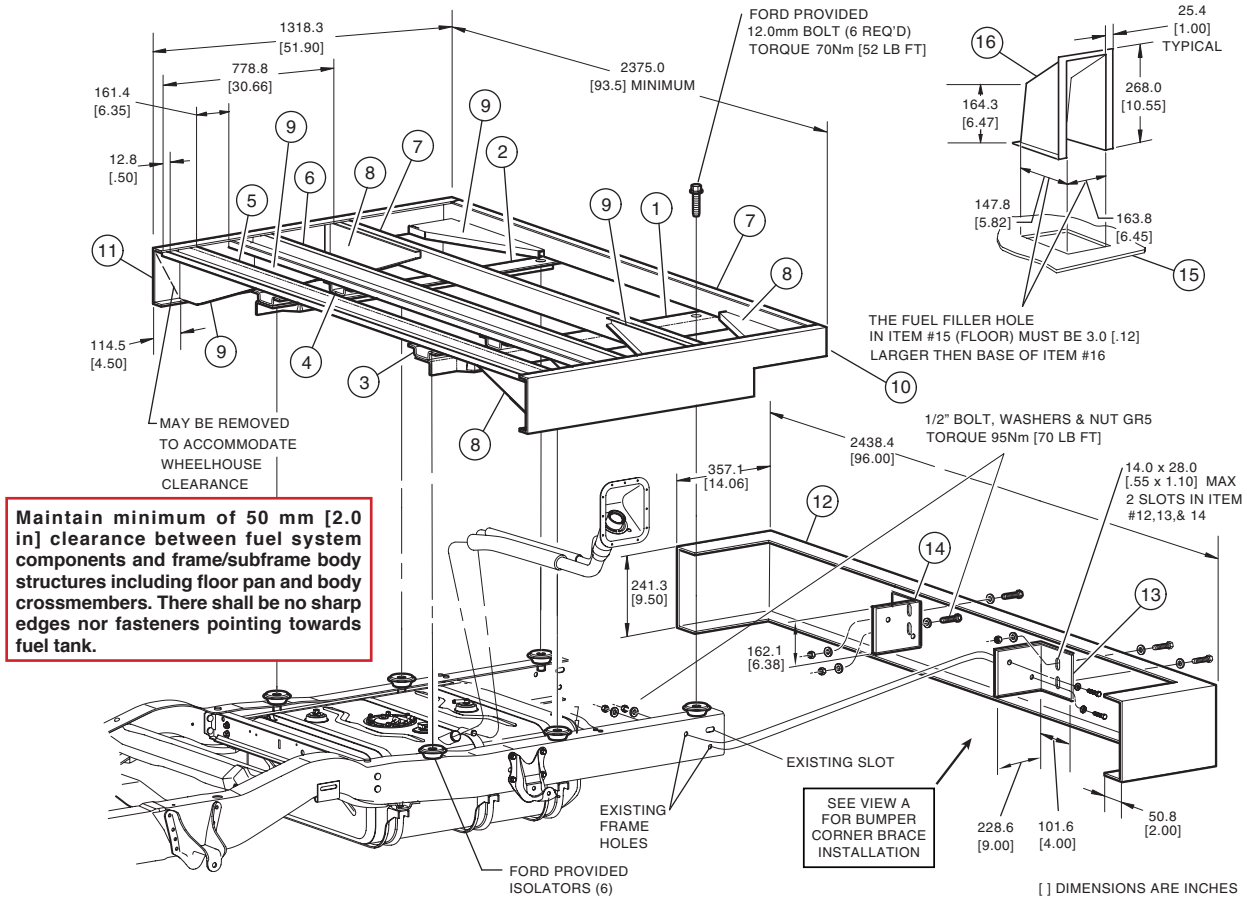


FIGURE J1 – E-SERIES DRW SCHOOL BUS FUEL SYSTEM AND FLOOR STRUCTURE

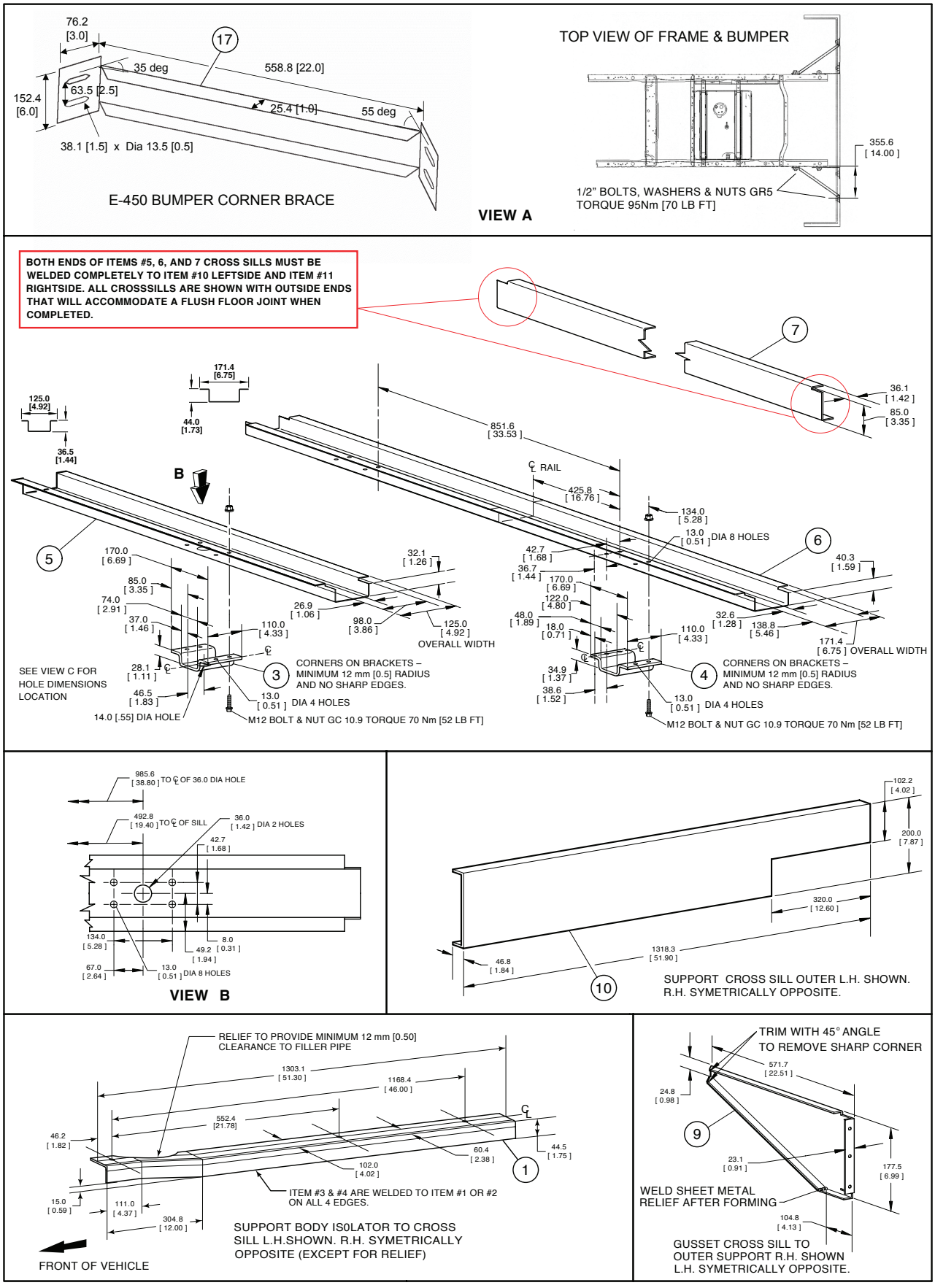

76.2 [3.0]
17
35 deg
558.8 [22.0]
152.4 [6.0]
63.5 [2.5]
25.4 [1.0]
55 deg
38.1 [1.5] x Dia 13.5 [0.5]
E-450 BUMPER CORNER BRACE
TOP VIEW OF FRAME & BUMPER
355.6 [14.00]
1/2" BOLTS, WASHERS & NUTS GR5
TORQUE 95Nm [70 LB FT]
VIEW A
BOTH ENDS OF ITEMS #5, 6, AND 7 CROSS SILLS MUST BE WELDED COMPLETELY TO ITEM #10 LEFTSIDE AND ITEM #11 RIGHTSIDE. ALL CROSSSILLS ARE SHOWN WITH OUTSIDE ENDS THAT WILL ACCOMMODATE A FLUSH FLOOR JOINT WHEN COMPLETED.
7
36.1 [1.42]
85.0 [3.35]
171.4 [6.75]
125.0 [4.92]
44.0 [1.73]
36.5 [1.44]
851.6 [33.53]
℄ RAIL
425.8 [16.76]
134.0 [5.28]
13.0 [0.51] DIA 8 HOLES
B
5
6
170.0 [6.69]
85.0 [3.35]
74.0 [2.91]
37.0 [1.46]
110.0 [4.33]
28.1 [1.11]
46.5 [1.83]
14.0 [.55] DIA HOLE
26.9 [1.06]
32.1 [1.26]
98.0 [3.86]
125.0 [4.92] OVERALL WIDTH
SEE VIEW C FOR HOLE DIMENSIONS LOCATION
3
CORNERS ON BRACKETS – MINIMUM 12 mm [0.5] RADIUS AND NO SHARP EDGES.
13.0 [0.51] DIA 4 HOLES
M12 BOLT & NUT GC 10.9 TORQUE 70 Nm [52 LB FT]
42.7 [1.68]
36.7 [1.44]
170.0 [6.69]
122.0 [4.80]
48.0 [1.89]
18.0 [0.71]
110.0 [4.33]
34.9 [1.37]
38.6 [1.52]
40.3 [1.59]
32.6 [1.28]
138.8 [5.46]
171.4 [6.75] OVERALL WIDTH
4
CORNERS ON BRACKETS – MINIMUM 12 mm [0.5] RADIUS AND NO SHARP EDGES.
13.0 [0.51] DIA 4 HOLES
M12 BOLT & NUT GC 10.9 TORQUE 70 Nm [52 LB FT]
985.6 [38.80] TO ℄ OF 36.0 DIA HOLE
492.8 [19.40] TO ℄ OF SILL
36.0 [1.42] DIA 2 HOLES
42.7 [1.68]
134.0 [5.28]
67.0 [2.64]
49.2 [1.94]
8.0 [0.31]
13.0 [0.51] DIA 8 HOLES
VIEW B
102.2 [4.02]
200.0 [7.87]
320.0 [12.60]
1318.3 [51.90]
46.8 [1.84]
10
SUPPORT CROSS SILL OUTER L.H. SHOWN. R.H. SYMETRICALLY OPPOSITE.
RELIEF TO PROVIDE MINIMUM 12 mm [0.50] CLEARANCE TO FILLER PIPE
1303.1 [51.30]
1168.4 [46.00]
552.4 [21.78]
℄
46.2 [1.82]
60.4 [2.38]
44.5 [1.75]
102.0 [4.02]
1
ITEM #3 & #4 ARE WELDED TO ITEM #1 OR #2 ON ALL 4 EDGES.
15.0 [0.59]
111.0 [4.37]
304.8 [12.00]
SUPPORT BODY IS0LATOR TO CROSS SILL L.H.SHOWN. R.H. SYMETRICALLY OPPOSITE (EXCEPT FOR RELIEF)
FRONT OF VEHICLE
TRIM WITH 45° ANGLE TO REMOVE SHARP CORNER
571.7 [22.51]
24.8 [0.98]
9
23.1 [0.91]
177.5 [6.99]
WELD SHEET METAL RELIEF AFTER FORMING
104.8 [4.13]
GUSSET CROSS SILL TO OUTER SUPPORT R.H. SHOWN L.H. SYMETRICALLY OPPOSITE.
[ ] DIMENSIONS ARE INCHES

FIGURE J2 – E-SERIES SCHOOL BUS FUEL SYSTEM AND FLOOR STRUCTURE (OVER 4536 KG [10,000 LB] GVWR)

CANADIAN VEHICLES

(Vehicles to be completed for sale or use in Canada)

VEHICLE IDENTIFICATION

Refer to the "Vehicle Description" section of this manual for additional information. Incomplete vehicles produced by Ford Motor Company require, for certain applications, optional prep packages or trim codes which are listed on the Completed Vehicle Types chart.

DAYTIME RUNNING LAMP (DRL)

Compliance representations for CMVSS 108, Lighting System and Retroreflective Devices, are in the "Statements of Conformity" section of this manual. The following items are also required for CMVSS 108 compliance:

- The DRL circuits in the Smart Power Distribution Junction Box (SPDJB) are not to be altered.
- The SPDJB module is not to be repositioned.
- The E-Series Basic (Stripped) Chassis, when equipped with a SPDJB module configured for Daytime Running Lamps as provided by Ford Motor Company, is designed only for a two headlamp system.

CANADIAN RADIO FREQUENCY INTERFERENCE (RFI) INFORMATION

All vehicles powered by spark ignition engines (e.g.: gasoline, natural gas, or propane engines) and manufactured in Canada or for sale or use in Canada are subject to the Canadian "Regulations for the Control of Interference to Radio Reception" per Interference-Causing Equipment Standard (ICES-002) and applicable test method according to "CAN/CSA-C108.4-M06". Violation of these regulations is punishable by fine or imprisonment. This Ford-built incomplete vehicle (if other than a Basic (Stripped) Chassis) was designed and manufactured to be capable of meeting the regulatory requirements or such modifications thereof as may have been authorized by the Department of Communications. However, because Ford Motor Company has no control over how this incomplete vehicle is completed by subsequent stage manufacturers, Ford Motor Company does not represent that the completed vehicle incorporating the Ford-built components will comply with applicable requirements.

The following information is supplied to subsequent stage manufacturers to help them avoid increasing the RFI emissions of this vehicle in the course of completing it.

For any completed vehicle, additional measures may be needed to adequately suppress RFI emissions. Affected components could include spark plugs, ignition wires, ignition coils, ground straps, ignition component shields, accessory drive belts, instrument voltage regulator suppressor assembly, and ignition coil suppressor assembly.

More specifically:

- All components required to suppress RFI emissions, which are removed during service, repair, or completion of the vehicle, must be reinstalled in the manner in which they were installed by Ford Motor Company.
- Shields on ignition coils must remain installed.
- Replacement spark plugs, ignition wires, and ignition coils must be equivalent in their RFI suppression properties to original equipment.
- Electrical grounds on all components must be retained.
- Metallic components installed on the body or chassis must be grounded to the chassis.
- Electrical circuits added to the vehicle must not be installed near the high voltage ignition components.
- Only "static conductive" accessory drive belts should be used. Fan, water pump, power steering, and other belts should be of the OEM type or equivalent that will not build up a static electrical charge.
- Engine compartment wiring must not be rerouted in any manner.
- The Powertrain Control Module (PCM) must not be relocated from the position as installed by Ford Motor Company.

Additional guidance for installing two-way mobile radios can be found via the web at www.fordemc.com/docs/download/Mobile_Radio_Guide.pdf.

EMISSION CERTIFICATION INFORMATION

CAUTION:

U.S.:

Vehicles are emission certified for registration in specific areas of the United States. For example, **VEHICLES CERTIFIED AND LABELED FOR SALE IN CALIFORNIA CAN NOT BE SOLD IN THE STATES THAT REQUIRE FEDERALLY CERTIFIED VEHICLES AND VEHICLES CERTIFIED TO FEDERAL STANDARDS CAN NOT BE SOLD IN STATES THAT REQUIRE CALIFORNIA CERTIFIED VEHICLES.** It is the subsequent stage manufacturer's responsibility to purchase a vehicle certified for the state/area in which the vehicle will be sold. EPA has stated that under certain circumstances they will not enforce these requirements. For further guidance consult EPA's "Policy on Cross Border Sales of California Vehicles."

CANADA:

If the completed vehicle is intended for sale or use in Canada, the intermediate or final stage manufacturer must insure that the incomplete vehicle is ordered through a Canadian dealer or is ordered from Ford Motor Company with the appropriate Canadian market option code. Failure to do so may result in an incomplete vehicle that is built with an emissions system and labeling that are not in compliance with the requirements of the Canadian Environmental Protection Act.

IMPORTANT:

It is the responsibility of the body builder, installer, or subsequent stage manufacturer to ensure that the maximum completed vehicle curb weight and frontal area specified by Ford Motor Company are not exceeded. If these restrictions are exceeded, or if the vehicle is modified such that it will not comply with applicable emission standards throughout its useful life, the body builder, installer, or subsequent stage manufacturer will be considered a manufacturer for purposes of complying with U.S. Federal, California, or Canadian exhaust and evaporative emission requirements, and Federal fuel economy standards, labeling, and certain other requirements.

IMPORTANT:

For purposes of Government Regulation, a body builder, installer, or any subsequent manufacturer may be considered a manufacturer.

VEHICLE EMISSION CONTROL INFORMATION LABEL

To meet United States Environmental Protection Agency regulations, the Vehicle Emission Control Information (VECI) label must be affixed in the engine compartment in a location that is readily visible after installation and in such a manner that it cannot be removed without destroying or defacing the label. The label shall not be affixed to any equipment that is easily detached from the vehicle.

The Cutaway VECI label is affixed to the forward underside of the engine hood. The Basic (Stripped) Chassis VECI label is affixed to the forward face of the birdcage structure that supports the instrument panel and steering column.

For Canadian requirements, consult On-Road Vehicle and Engine Emission Regulations (SOR).

FRONTAL AREA AND WEIGHT RESTRICTIONS

E350 incomplete vehicles with a 6.8L engine are certified using chassis certification protocol and will require vehicle weight and frontal area restrictions (to retain emission certification). **The frontal area and unloaded vehicle weight information will be found on the VECI label, located on the vehicle as noted in the preceding VECI section.**

Incomplete vehicles with engines certified using heavy-duty engine protocol are not limited by weight and frontal area restriction for exhaust emissions.

It is important that the final stage manufacturer observe vehicle restrictions from vehicle safety requirements, etc., which are located elsewhere in this manual. **For additional information, contact the Body Builder Advisory Service at www.fleet.ford.com/truckbbas.**

HIGH ALTITUDE REQUIREMENTS

United States Environmental Protection Agency regulations do not contain unique emission certification requirements for trucks that will be sold or delivered to customers for principal use above 1,219 m [4,000 ft.].

EMISSION CONTROL HARDWARE

Any body builder, installer, or subsequent stage manufacturer must also assure that all emission control hardware furnished with incomplete vehicles is on the vehicle and is operational and that applicable instructions for incorporating such hardware into the completed vehicle's electrical or mechanical systems are strictly followed.

Further, to avoid any question of certification coverage, approval of any modification or use of an engine or vehicle which may alter or render inoperative any of the emission control components must be obtained from the United States Environmental Protection Agency by the manufacturer making such modification or use prior to distribution, sale, offering for sale, introduction, or delivery for introduction of the subject vehicle into U.S. commerce. Additionally, the manufacturer making such modification or use must obtain approval from the California Air Resources Board if the new vehicle will be delivered for sale or use in the State of California.

UNLEADED GASOLINE LABEL

Regulations no longer require the manufacturer to affix permanent labels reading "Unleaded Gasoline Only" or "Unleaded Fuel Only" to vehicles destined for sale in the United States or Canada. Such labels may however be required for vehicles sold into other markets. It is the responsibility of the body builder, installer, or any subsequent manufacturer to properly label vehicles for the market in which they are sold.

EXTERIOR NOISE

New vehicles with a gross vehicle weight rating in excess of 4536 kg [10,000 lb], with a partially or wholly enclosed operator's compartment and manufactured for use in the United States, as completed by final stage manufacturers, must comply with U.S. Environmental Protection Agency exterior noise emission regulations for medium and heavy trucks (40 CFR Part 205, Subpart B) which establish a noise emission limit of 80 dB (A). The noise label attached to incomplete cutaway vehicles reflects the results of noise testing of these vehicles as shipped by Ford Motor Company.

(Continued next page)

(Continued)

However, the Basic (Stripped) Chassis as built by Ford Motor Company is too incomplete to constitute a regulated vehicle and Ford Motor Company does not represent that it complies with those regulations. With respect to the Basic (Stripped) Chassis, it is the responsibility of the subsequent stage manufacturer of that vehicle at the time it first conforms to the regulatory definition of "vehicle" to comply with the requirements imposed upon manufacturers by these regulations.

TAMPERING WITH NOISE CONTROLS

Federal law prohibits the removal or rendering inoperative by any person, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into such vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use. Federal Law also prohibits the use of such vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- Removal of fender apron absorbers, fender apron barriers, underbody noise shields, or acoustical absorptive material.
- Removal of or rendering inoperative the engine speed governor so as to allow engine speed to exceed manufacturer's specifications.
- Removal or modification of air duct, air intake choke or silencer, air cleaner, or air cleaner element.
- Removal of, or rendering inoperative, exhaust system components including the catalyst inlet pipe, muffler, outlet pipe, resonator, or diffuser.
- Removal of the fan shroud. Removal of or rendering inoperative the fan clutch.

New vehicles manufactured for sale in Canada must comply with applicable provisions of Canada Motor Vehicle Safety Standard 1106, Noise.

Additional noise emissions information is contained in the *Ford Truck Body Builders Layout Book.*

WARRANTY AND MAINTENANCE

A copy of the appropriate *Ford Truck Owners Guide and Warranty Guide* must be installed in every vehicle prior to sale to the ultimate purchaser in order to provide emission systems warranty information and maintenance schedules. It also provides, where required by EPA noise control regulations for vehicles having GVWR over 4536 kg [10,000 lb], noise emissions warranty information, instructions for maintenance, use, and repair of vehicle noise emission control systems, a maintenance record format, and list of prohibited tampering acts.

EVAPORATIVE EMISSIONS

All Federal light and heavy duty trucks and all California vehicles with gasoline engines are required to comply with evaporative emissions requirements established by the Environmental Protection Agency or the California Air Resources Board. Production fuel systems supplied on incomplete trucks manufactured by Ford Motor Company comply with these requirements. **If the subsequent stage manufacturer adds to or modifies the fuel system in any manner, it becomes the responsibility of the modifier to assure compliance with the applicable regulations.** Refer to the Design Recommendation section of the *Ford Truck Body Builders Layout Book,* for additional Fuel System Evaporative Emissions information.

MALFUNCTION INDICATOR LIGHT (MIL)

The "Malfunction Indicator Light" is used to indicate malfunctions of the engine's emission control system and certain powertrain emissions-related components. For all incomplete vehicles, except Basic (Stripped) Chassis (which is not equipped with an instrument panel), the MIL is Ford-installed and operational in the instrument panel.

The E-Series Basic (Stripped) Chassis vehicle has the MIL warning light installed in the instrument cluster, which is shipped in the dunnage box. If an alternate instrument cluster is utilized, the final stage manufacturer must install an operational MIL in the instrument cluster. The MIL must be located on the driver's-side instrument panel, be of sufficient illumination and location to be readily visible under all lighting conditions and shall be amber in color when illuminated. The MIL, when illuminated, shall display the phrase "Check Engine" or "Service Engine Soon". The word "Powertrain" may be substituted for "Engine" in the previous phrases. Alternatively, the ISO engine symbol may be substituted for the word "Engine" or for the entire phrase. This is a requirement for emission certification.

OZONE DEPLETING SUBSTANCE (ODS)

The Clean Air Act of 1990, Section 611 requires any product (i.e., completed vehicle) containing or manufactured with any Class I Ozone Depleting Substance on, or after May 15,1993 must be identified with a "clearly and conspicuously attached label."

Ford Motor Company has eliminated Class I ODS from its manufacturing processes. All Ford Truck incomplete vehicles will not have Class I ODS content.

Manufacturers, including subsequent stage manufacturers, are required to label their products if the product, including any component (whether manufactured by that manufacturer or not), contains a Class I ODS or if the manufacturer used a Class I ODS in the manufacturing of the product. In the case where Ford Motor Company provides a label saying the incomplete vehicle contains a Class I ODS that information must be placed on the product warning label. (See EPA regulation on wording, placement, size, and combining labels.) In Canada consult the appropriate Provincial or Territorial Ministry of Environment.

CALIFORNIA FUEL VAPOR RECOVERY

California regulations require that the vehicle fuel systems be designed to accommodate a vapor recovery fueling nozzle including unobstructed access to the fill pipe. Fuel filler pipes installed per Figures I & J (Ref: Standard 301) will comply with the "Specifications For Fill Pipes and Openings of Motor Vehicle Fuel Tanks" referenced in Title 13 California Administrative Code provided no part of the aftermarket body, as installed, intrudes within a 254mm [10 in] radius cylinder which has its axis parallel to the ground at point "Z" (Figure J illustrates a typical point Z). The cylindrical zone uses the axis described above, starts at the outer most surface of the Ford supplied fuel filler housing, and projects outward (away from the frame).

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The fuel pipe housing component is shown on the referenced figures and is attached to the aftermarket body via 3/16 inch diameter rivets.

CALIFORNIA MOTOR VEHICLE EMISSION CONTROL LABEL

To meet California emission certification regulations, the Vehicle Emission Control Information (VECI) label must be welded, riveted, or otherwise permanently attached to an area within the engine compartment or to the engine in such a way that it will be readily visible to the average person after installation of the engine in a vehicle. In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). The label shall be affixed in such a manner that it cannot be removed without being destroyed or defaced, and shall not be affixed to any part which is likely to be replaced during the vehicle's useful life. For motor vehicles rated at 6350 kg [14,000 lb] GVWR or less, the label shall not be affixed to any equipment which is easily detached from the vehicle. As used in these specifications, readily visible to the average person shall mean that the label shall be readable from a distance of 460 mm [18 in] without any obstructions from vehicle or engine parts (including all manufacturer available optional equipment), except for flexible parts, (e.g., vacuum hoses, ignition wires). Alternately, information required by these specifications to be printed on the label shall be no smaller than 8 point type size provided that no vehicle or engine parts (including all manufacturer available optional equipment), except for flexible parts that can be moved out of the way without disconnection, obstruct the label.

Completed vehicles for retail sale in California require a machine-readable Vehicle Identification Number (VIN) bar-code label made of paper, plastic, metal, or other permanent material which shall be affixed in a readily visible location to either the door-latch post next to the driver's seating position, the door edge that meets this door-latch post, or above the instrument panel in a location clearly visible through the lower left corner of the windshield.

- All Cutaway incomplete vehicles will conform to this standard.
- Basic (Stripped) Chassis type vehicles:

  Conformity with CARB Motor Vehicle Emission Control Label specifications for VIN label cannot be determined based upon the components supplied on this incomplete vehicle. Accordingly, Ford Motor Company makes no representation as to conformity with this requirement.

For the VECI and VIN labels, sufficient clearance shall be provided to use a non-contact bar-code Reading Wand. For the VECI label, the label and any adhesives used shall be designed to withstand typical vehicle environment conditions in the area where the label is attached for the vehicle's total expected life. Typical vehicle environmental conditions shall include, but are not limited to, exposure to engine lubricants and coolants (e.g., gasoline, motor oil, brake fluids, water, ethylene glycol), under hood temperatures, steam cleaning, and paints or paint solvents.

RADIO FREQUENCY INTERFERENCE (RFI)

The ignition system on your vehicle (if other than a Basic (Stripped) Chassis) has been designed to be capable of compliance with RFI requirements established by the Canadian government. However, because Ford Motor Company has no control over how an incomplete vehicle is completed by subsequent stage manufacturers, Ford Motor Company does not represent that the completed vehicle incorporating the Ford-built components will comply with those requirements. Any ignition system component (i.e.: spark plugs, ignition wiring, coil suppressor assembly, etc.) that is replaced should be replaced by the same Ford Motor Company part number or equivalent to maintain RFI suppression.

While there are currently no RFI regulations in the United States specifically applicable to automotive ignition systems, all Ford Motor Company trucks built with an ignition system use the same or equivalent components to those supplied on Canadian vehicles.

Ford Motor Company recommends that all ignition system service be performed at a Ford authorized service facility to help hold RFI emissions levels to a minimum.

Additional RFI information is contained in the "Canadian Vehicles" section of this manual.

Devices that emit radio frequency (RF) energy such as AM/FM radios, mobile telecommunications systems (two-way radios, telephones), and radio controlled security systems are subject to the rules and regulations of the Federal Communications Communication (FCC), including 47 CFR Parts 2 and 15. Any such system installed in a vehicle should comply with those rules and should be installed only by a qualified technician. In addition, to ensure continued compliance with the FCC's regulations, RF devices must not be modified or changed in a manner not expressly approved by Ford Motor Company Mobile Communication Systems. RF devices particularly, if not properly installed, may adversely affect the operation of the vehicle. For example, such systems when operated may cause the engine to stumble or stall. In addition, such systems themselves may be damaged or their operation affected by the operation of the vehicle. (Citizens Band [CB] transceivers, garage door openers, and other transmitters whose power output is 5 watts or less, ordinarily will NOT affect vehicle operation.)

Because Ford Motor Company has no control over the operation or manufacture of such systems or their installation, Ford Motor Company cannot assume responsibility for any adverse effects or damage if this equipment is used.

Additional guidance for installing two-way mobile radios can be found via the web at www.fordemc.com/docs/download/Mobile_Radio_Guide.pdf.

REFERENCE INFORMATION

FORD TRUCK BODY BUILDERS LAYOUT BOOK

Throughout this manual you will find references to information found in the *Ford Truck Body Builders Layout Book*. Additional Design Recommendations and specifications are also provided to assist subsequent stage manufacturers in completing chassis cab and incomplete vehicles. The *Ford Truck Body Builders Layout Book* can be accessed via the web at www.fleet.ford.com/truckbbas under the “Publications” tab.

FORD SERVICE PUBLICATIONS

Many Ford Service Publications pertain to specific Model Year and vehicle types. Ford Service Publications are available by subscription via the web at www.motorcraft.com. The following publications are a few of many manuals which are available from Helm Incorporated; call: 1-800-782-4356

- Ford Truck Shop Manuals
- Ford Towing Manual
- Ford Electrical & Vacuum Trouble Shooting Manual
- Ford Wiring Diagram

FORD TRUCK BODY BUILDER ADVISORY SERVICE

The Ford Truck Body Builder Advisory Service may be consulted regarding information contained in this manual. Call toll free 877-840-4338 or e-mail via the web at www.fleet.ford.com/truckbbas under the “Contact Us” tab.

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